



CONTENTS

REPORT

- **THE RESURGENCE OF CHATHAM DOCKYARD:** *Paul Smith*

WORLDWIDE

- **BUILDING TOMORROW'S ARCHIVES TODAY:** *Bernard Bay*
- **CONSERVATION MANAGEMENT OF RYDE WATER PUMPING STATION:** *Philip Bennett*
- **MEMORY AND INDUSTRIAL HERITAGE:** *Guilherme Pinheiro Pozzer*
- **SYSSERT IRONWORKS:** *Andrey Burganov, Anastasiya Biryukova and Nadezhda Solonina*

MONTREAL CONGRESS 2022

- **INDUSTRIAL HERITAGE IN CANADA (PART 1):** *Alain Gelly*

TICCIH NEWS

- **AUSTRALIA'S NATIONAL SCIENTIFIC COMMITTEE ON INDUSTRIAL HERITAGE:** *Keith Baker*
- **INTERNSHIP AT TICCIH AUSTRIA:** *Enikő Charlotte Zöller*

WORLD HERITAGE ISSUES

- **URBAN LANDSCAPE AND THE DELISTING OF LIVERPOOL – MARITIME MERCANTILE CITY:** *Dennis Rodwell*
- **THE TRANS-IRANIAN RAILWAY:** *Hassan Bazazzadeh, Mohsen Ghomeshi and Asma Mehan*

MODERN INDUSTRIAL MUSEUMS

- **REPURPOSING HISTORIC AVIATION BUILDINGS:** *Allan Winn*
- **WARSAW'S NORBLIN FACTORY:** *Michał Bogusławski and Marek Mroziewicz*

CONFERENCE REPORTS

- **INDUSTRIAL HERITAGE CULTURE IN THE 2020s:** *Anders Houlitz*

BOOK REVIEWS

- **FROM COTTONMILL TO COTTONOPOLIS: HOW TEXTILE FACTORIES SHAPE URBAN FORM:** *Massimo Preite*
- **RAILROADS, A HISTORY IN DRAWINGS:** *Betsy Fahlman*



Miles Oglethorpe shows US Secretary of the Interior, Deb Haaland, the Forth Bridge during the COP26 climate conference in 2021. Photo: Melissa Schartz

TICCIH PRESIDENT'S COLUMN

REFLECTING ON 2021 - FROM COVID TO COP26

Miles Oglethorpe

First, let me take this opportunity to wish everyone a Happy New Year, and to hope that 2022 is an improvement on 2021. A year ago, many of us entered 2021 thinking exactly the same thing, and we are anxious that it will be significantly better this time. So, we desperately want to move on, and the fact is that, despite the continuing uncertainty, there are some good things to look forward to in 2022. Of these, our Montreal Congress in August is, of course, a major highlight.

Looking back on 2021, I am deeply grateful for the extraordinary resilience and power of the Internet, and to the armies of usually invisible IT technicians who have not only kept our systems working, but have also improvised, innovated and improved them. It is extraordinary to think that we are now routinely speaking to networks of people across the world (despite the occasional time-zone glitch here and there), and although it pains me to say it, sometimes you can see and hear people's presentations far better on your computer than you would in meeting rooms or halls. The significance of this is heightened by the fact that I have recently attended meetings with high-quality simultaneous translation piped in via optional audio channels embedded in the video platform. For international discussions, we have therefore entered a totally new era.

If I had to cite an abnormally significant event in 2021, it would have to be COP26, not merely because it was very important, but also because it occurred in Scotland and I was able to engage with it via my employer, Historic Environment Scotland (HES). Although it was hosted in Glasgow by the UK Government, the Scottish Government urged organisations such as HES to support the event as much as possible, and our aim was to put the historic environment centre-stage. This very much aligned with the core aim of HES's Climate Action Plan – to transform '... our cultural heritage from a victim of climate change into a catalyst for climate action.'

Ultimately, HES was involved in 48 COP26-related events over two weeks, all of which goes to demonstrate that, beneath the high-level headline-inducing news stories, there was a lot happening and some great work being done by thousands of people and hundreds of organisations. For us, we were working on issues such as sustainable tourism, the procurement of traditional materials, and encouraging the adaptive re-use of buildings.

COP26 was also special because HES received an unexpected visit from part of the US delegation. We had already been excited by the news that President Biden had insisted on visiting the Forth Bridge before heading to the airport and flying home to Washington. However, we were also very honoured to host a personal visit from US Secretary of the Interior, Deb Haaland, who called in on the HES Conservation Centre, The Engine Shed in Stirling, and then also visited the Forth Bridge. Her portfolio includes the National Parks Service with whom HES works on a number of projects, so we had a lot to talk about both with her and her delegation. Given that they specifically expressed an interest in historic bridges, we also took the opportunity to cite the excellent work of our US colleagues, not least HAER and SIA, and paid tribute to the work of the late Eric Delony, whose thematic study of



Poster promoting refurbishment and retrofit which appeared across Scotland during COP26.

Opinions expressed in the Bulletin are the authors', and do not necessarily reflect those of TICCIH. Photographs are the authors' unless stated otherwise.

TICCIH

President: Dr. Miles Oglethorpe
Historic Environment Scotland
Longmore House, Edinburgh EH9 1SH, Scotland
e: mkoglethorpe@icloud.com, t: +44 01316688611

Secretary General: Prof. Dr. Marion Steiner
Pontificia Universidad Católica de Valparaíso, Chile
e: secretary@ticcih.org

Editor: Articles and news of recent and future events should be sent to the Editor, James Douet, C. Bruc, 176, 2. 4., Barcelona 08037, Spain, e: editor@ticcih.org

TICCIH Membership: Daniel Schneider, e: ticcih@mtu.edu
TICCIH Website: Daniel Schneider, e: ticcih@mtu.edu

FIND TICCIH ONLINE: WWW.TICCIH.ORG

ISSN: 1605-6647

TICCIH is the world organization on Industrial Heritage, promoting its research, recording, conservation and dissemination and education on industrial heritage. It holds a triennial conference and organises interim conferences on particular themes. Individual membership levels range from \$10 to \$40 (USD), corporate membership is \$65, and student membership levels range from \$5 to \$10.

There is an online membership form on www.ticcih.org

The **TICCIH Bulletin** welcomes news, comment and (shortish) articles from anyone who has something they want to say related to our field. The Bulletin is the only international newsletter dedicated to industrial archaeology and the conservation of the heritage of industrialisation. The TICCIH Bulletin is published online to members four times a year.

Back issues can be downloaded as a pdf file from the TICCIH web site, www.ticcih.org

& ON SOCIAL MEDIA:





Bermaline Maltings being converted to housing.

bridges had been instrumental in the successful World Heritage nomination of the Forth Bridge. We also took the opportunity to wish them luck with the forthcoming Brooklyn Bridge nomination.

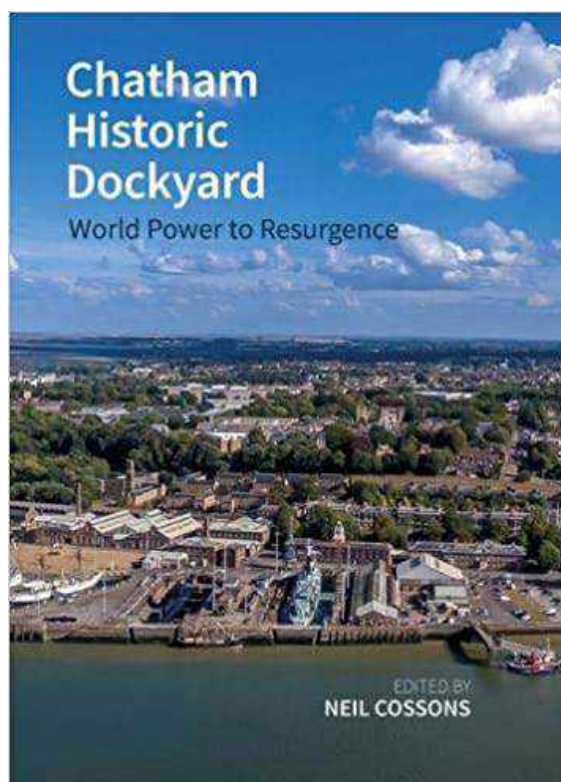
Meanwhile, during COP26 an advertisement caught my attention in the street opposite my apartment in Edinburgh. I was impressed to see it highlighting the need to stop demolishing older buildings as a default strategy and to start adapting and re-using them, thereby saving the embodied carbon within them and giving them a second (or third or fourth...) life. Those of us who work in industrial heritage are no strangers to adaptive re-use, but there is no doubt that more could be done and many more industrial buildings could be transformed and brought back into use.

With this thought in mind, it was pleasing to encounter two gently inspiring examples of adaptive re-use when attempting to burn off

some of the calories that I had consumed during the festive break. The first was the locomotive works of Andrew Barclay in Kilmarnock, which has been tastefully converted to apartments. The second was the spectacular former Bermaline Maltings in Haddington, to the east of Edinburgh, which is also undergoing conversion to housing. The retention and transformation of these buildings has greatly benefited the towns in which they are located, both being important historical landmarks and a core part of the identity of their respective communities. I look forward to seeing many more projects like this across the world.

Happy 2022!

Miles



CHATHAM HISTORIC DOCKYARD, WORLD POWER TO RESURGENCE

Neil Cossons (ed.), Swindon, Liverpool University Press/Historic England, 2021, 136 pages, illustrated

UK

THE RESURGENCE OF CHATHAM DOCKYARD

Paul Smith, General secretary CILAC (Comité d'information et de liaison pour l'archéologie, l'étude et la mise en valeur du patrimoine industriel)

Following the evaluation of the Arles railway works in the last TICCIH Bulletin (#94), Paul Smith reviews a new life of the even-larger Chatham Dockyard since its closure in 1984.

Chatham Royal Dockyard, situated on the River Medway in the county of Kent in southern England, traces its beginnings to the reign of Elizabeth I. It was definitively closed in 1984, during the reign of Margaret Thatcher. Over the four centuries of its existence,

it was the birthplace of over four hundred warships, including *HMS Victory*, celebrated - in the UK - as Admiral Nelson's flagship at the battle of Trafalgar. The dockyard went on to build iron-hulled warships and, during the 20th century, almost sixty submarines. The workshops were mechanised from an early date: the sawmills, designed by the French émigré engineer Marc Brunel, harnessed steam power in 1812. During the second half of the 19th century, the site saw considerable extension to the north, with the construction of three immense floating basins, dug by a thousand convict labourers.

This modernisation left the 18th and early 19th century facilities largely intact, forming what is known today as the 'historic' dockyard, covering more than thirty hectares and comprising about a hundred buildings and structures, the oldest of which are a mast pond of 1702 and the dockyard commissioner's residence, dating from 1704. Built from 1786, the 347-metre-long ropery, one of the key units of the dockyard (a ship like the *Victory* required 50 kilometres of rope) is still in use today, making rope with its Georgian and Victorian equipment. Equally remarkable are the covered slipways, roofed first in timber, in 1837, and subsequently in metal, a vivid lesson in the development of wide-span constructions. The site's component parts are all listed or scheduled monuments (the designation system in England), as is the perimeter wall enclosing them on the landside. Along with the open spaces between the buildings (the 'yard' in dockyard), all bear witness to the might and majesty of an age when Britannia ruled the waves and when 'global Britain' was a reality, not a political slogan.

The collection of essays brought together in this publication by Neil Cossons (who needs no introduction to members of TICCIH) provides a well-illustrated account of the history of the site. The eminent naval historian Andrew Lambert sets the dockyard in its early industrial context—the availability in Kent of raw materials such as oak, elm and iron—and in the broader context of the evolving balance of power in Europe. Jonathan Coad, the leading authority on the history of Britain's Royal dockyards and naval bases, explains why Chatham is uniquely important, not only for its prestigious history but also for its exceptional survival, one of the largest industrial sites in the world in its 18th- and 19th-century heyday.

Most of the publication is concerned however with the history of the site since its closure in 1984, with further contributions by one of the dockyard's curators, by an economic development specialist and by a management consultant, suggesting explanations for the success of what is proclaimed to be 'an exemplar in the field of large-scale conservation and regeneration of historic environments.' In his introduction, Neil Cossons who, as director of the National Maritime Museum at Greenwich from 1983 was closely involved in the thinking about Chatham's future, underlines two of the explanatory factors. It was decided at an early stage to maintain the physical integrity of the historic estate in the unique ownership of a not-for-profit charitable trust, the Chatham Historic Dockyard Trust, set up in 1984. This avoided the piecemeal and incoherent disposal of different buildings as short-term opportunities arose. The second factor was the decision not to transform the site into one vast open-air maritime museum, but to aim instead at the creation of a 'living dockyard', with a mix of uses that, without excluding museum collections and exhibitions, would also offer places for



HMS Gannet in front of N° 3 covered slip at Chatham Dockyard. © Oast House Archive

living, for working and for learning. Richard Holdsworth, the site's first curator, describes some of the operations that, whilst maintaining their character and keeping the evidence of their historic functions, have succeeded in adapting dockyard buildings for new, revenue-generating activities: the Joiners' shop, now a creative industries starter unit; the n° 1 Smithery converted into exhibition space and a storage facility for museum collections; the Sail and Colour Loft, accommodating the Trust's own offices and a business school; the 1806 dockyard church housing a lecture theatre... Often adopting the 'box in a box' approach, these various operations were all underpinned by the key conservation principles of limiting loss of historic fabric, undertaking 'honest' and visible repairs and ensuring reversibility wherever possible.

Another consideration in Chatham's success story is of course the question of time. The site was first opened to visitors in 1985 and the local population, still suffering from the 6,500 jobs lost at the dockyard's closure, expected it to become an instant tourist attraction. But the 'great day out' could not be constructed overnight, and time was necessary not only for the restoration of the buildings and the provision of car parks, restaurants and toilets, but also to acquire and install three ships, a Victorian sloop, a Second World War destroyer and a Cold War submarine, catering to the visitors'

need for what one author calls an 'iconic experience'. Other factors mentioned as contributing to Chatham's success - good fortune, serendipity, the happy circumstance of the right people being in the right position at the right time - were doubtless essential, but more difficult to appreciate as possible models for sites elsewhere. Another specificity in the British situation that may not necessarily be pertinent in other countries is the National Heritage Lottery Fund, the main source of financing for the Chatham Trust and its projects. This fund was set up at the creation of Britain's national lottery in 1994: heritage was one of the 'good causes' to be helped by lottery money, a sweetener designed to overcome traditional opposition to state-franchised gambling.

Chatham, the most complete dockyard of the age of sail, is a place of outstanding universal value and features, with its defences, on the UK's tentative list for inscription as world heritage. Curiously, this fact is not mentioned anywhere in the publication, which, regrettably, also omits any comparison with other historic dockyard sites in Europe. The Venice arsenal of course springs to mind, as does the arsenal at Rochefort, founded by Colbert, on the River Charente, in the 1660s, and featuring on the France's tentative list for UNESCO world heritage. Is a transboundary Chatham-Rochefort joint nomination impossible to imagine?



Mina Livezeni - Valea Jiului, Romania, 2018

BELGIUM

BUILDING TOMORROW'S ARCHIVES TODAY

Bernard Bay, photographer, Director of the Superior School of Art, Académie des Beaux-Arts, Tournai since 2002

My passion for photography is intimately linked to the world of industrial work. Performing what I would call a documentary photography, I exclusively photograph heavy industry, metallurgy, steel and mining, all forms of extractive industries with a particular attention to coal mines. We are now in a pivotal period which sees the emergence of green energy and sustainable development. In order to combat the glut of CO2 emissions responsible for climate change, fossil fuels are gradually being abandoned.

For forty years, therefore, I have witnessed the closure of many coal mines, the definitive abandonment of the exploitation of many coal

deposits in Europe, which only yesterday were the guarantors of a secure energy supply in many countries and had been a significant factor in their development since the beginning of the Industrial Revolution.

I was born in Belgium in 1959 in the workers' city of Houillères et Ateliers du Grand-Hornu. One November evening in 1976, my father drove me to the Charbonnage des Sarty in Hensies. When we arrived in front of the last active mine in the Borinage basin, he opened the car windows and said to me: *Look, listen, sniff the smell. This is the last.* So, I had to photograph them all!

I have limited myself to Western Europe but while I have not photographed all the mines yet, I do not despair of reaching my goal before the end of my career. Each mining site, each headframe, each extraction machine, each crusher-washing plan, has something unique which is both a reflection of the needs dictated by the geological morphology of the basins, and because they reflect the moment they were built and the technological advancement of the time. We must not overlook the human aspect in a heavy labor-intensive industry. Finally, there is the architectural aspect, its own aesthetic and its influence on the landscape.



KWK Brzeszcze – Malopolskie, Poland, 2017

Of course, we must not transform the mining basins into sanctuaries of industry, but it is essential to keep as many tangible and virtual traces as possible to bear witness to what the coal mines, the miners and their social heritage were.

Photography is inscribed in these virtual traces and is the most able to retain in images all aspects of work, machines, architectures, landscapes. Without being able to keep everything, photography is a good compromise allowing the transmission of knowledge to future generations.

Our industrial civilization was born out of coal and steel, water and steam. To want to deny it is to want to rewrite history. Today the last coal miners have a negative image; they are accused a little naively and crudely of being at the origin of all the misfortunes of the world. We forget that these men devoted their energy and very often their lives to the advancement of humanity.

Without archaism or nostalgia, without educational desire, the photographer gives substance to his approach. We must tear ourselves away from the dictatorship of other images, advertising, activist or

Industrial
Heritage
Reloaded

Le patrimoine
industriel
rechargé

TICCIH 2022
MONTREAL



formal ones: the beautiful clean machine, the blissful smile of the happy worker...

Nothing outside. Let's keep the business out of the public eye and let it go. Only the inside concerns me. What is being woven between men and machines, between gigantism of places and meticulousness of the gesture, interior where movement is culture and work is legend.

A few years ago, showing my images to photography students at the National University of Arts of Romania - UNARTE in Bucharest, a professor calls out to me and asks: how long does it take to take such a photograph? I reply: the pose is a fraction of a second, but it takes hours, weeks, months, even years and a lot of determination for the doors to open to the photographer. And from the inside, nothing is certain yet. It is necessary to persuade of the merits of the approach and sometimes, to divert the police gaze from the supervisor appointed for the visit.

Finally, I would like to repeat here the words of my colleague Viktor Mácha, published in *TICCIH Bulletin* #89 in 2020. 'I would like to appeal to all mining companies from all around the world – it is time to recognize industrial photography as a natural tool of historic science. Closing the doors to professionals in the field of industrial heritage preservation and documentation is saying no to what our ancestors left for us. Saying a NO to objective documentary work is saying a NO to our history and culture in general.'

The final word is from George Orwell in *The Road to Wigan Pier* (1936): 'If there is one man to whom I do feel myself inferior, it is a coal miner.'

Contact the author



Schacht Viktoria II – Saarland, Germany, 2007

GERMANY

INDUSTRIAL HERITAGE AND CLIMATE CHANGE. INVITATION TO A ROUNDTABLE ON TICCIIH 2022 CONFERENCE

Prof. Dr. Roman Hillmann, Deutsches Bergbau-Museum Bochum

The optimistic or pessimistic view on progress has a lot to do with recent events in climate change and extinction of species: Did we force the world to serve human comfort so long, now life will get worse? In 1983 the Brundland Report Our Common Future of the United Nations talked of Successes and Failures of mankind and said about the latter: there are 'also environmental trends that threaten to radically alter the planet, that threaten the lives of many species upon it, including the human species'. But while few read the report,

we heard it all in public culture, like in 1976 from the rock group Black Sabbath:

*Rocket engines burning fuel so fast
Up into the night sky they blast
Through the universe engines whine
Could it be the end of man and time?*



The coking plant at the Zollverein World Heritage Site is today looked upon as a quantity of ovens that produced too much carbon dioxide.

For many, including myself, it took Covid to fully understand the situation. But most of us heard an intelligent child, Greta Thunberg, who made the situation and its consequences quite clear. But though we know now, we are not sure what to do. Is there any chance whatever? Will there be an effect like in the 1990s, the worldwide action against a growing ozone-hole over the arctic? There a world community was actually successful. And it was on the basis of industrial invention and innovation, that the problem was solved. Is there a technical solution for today's problems?

Industrial heritage has become an important field of thinking about the effects of climate change. Narratives of industry's constant success and industrial heritage as testimonial of its history have come to an end. Now, we tend to see the contrary: Industrial history telling the beginning of a new world and the end of our world at the same time. Machines, collieries and factories may be seen as memorials instead of monuments. They may be reminders of a complex story of 'successes and failures'. I believe that a brainstorming-like inventory could be the basis to find out what to do. This is why I want to invite to the roundtable 'Industrial Heritage Conservation and Climate Change' at the TICCIIH-Conference 2022 in Montréal. It will try to collect thoughts to start providing a better basis in knowledge about what to do in this time of catastrophe.

If I start the brainstorming, I find myself dealing with our relationship towards heritages of machines, factories, mines, collieries, oil fields, power plants, airports. The question seems to be 'burning' in our minds, since a Scottish association, STICK, recently asked: may we still burn fossil energy for the demonstration of historic engines in museums?¹ While thousands drive to their work with an SUV, our community of practice in industrial heritage seems to get quite serious about the question of an end to the world where men, animals and plants can live. Why? To what extent can we contribute?

One view might be to go back to Lewis Mumford, who started writing his book 'Technics and Civilization' in 1930. His goal was to understand the interaction between human societies' development and technical development by taking machines into consideration quite seriously. Many have followed him: Thomas P. Hughes influenced a generation of technical historians and spread his ideas of the socio-technical systems we built to

foster technical development.² Mumford and Hughes were fascinated by phenomena they were describing while at the same time worried about the amount of harm they were doing. Today we are even afraid an end to progress may be possible. Books are being published that consider the history of the steam engine to be the history of climate destruction.³

For industrial heritage conservation, this poses a specific problem: We preserve historic objects of industry and machinery, that, while in use, were polluting the world. When they became useless, we tried to see a meaning instead of a use. Since they were once both useful and polluting, the meaning of these machines today may be that they are signs of human ingenuity and incompetence at the same time. Successes and failures, beauties and horrors are open to the eyes in industrial heritage. Probably Industrial Heritage is the last testimonial of rewarding futures in a proto-apocalyptic situation.

The problem today is much huger than ever before. Technical innovation for climate neutrality is an important field of research, but there is also the need to reduce our way of industrial production and even reduce endless search for innovation. Here the existence of Industrial Heritage may help: It may lead to a declining need of constantly proving ourselves. The reason for the overall attractiveness of more and more new innovations lies in the fascination for the new and more ingenious. But the fascination of ingenuity can easily be shown in every machine ever invented. Industrial Heritage is already a diorama of what man can do. We see our successes of ingenuity in every industrial artefact. C'mon, just look at it!

Contact the author

1. Scottish Transport & Industry Collections and Knowledge: "Burning Issues. The Future of Fossil Fuels in Heritage", April 2021.

2. Thomas P. Hughes, *The Evolution of Large Technological Systems*, 1989.

3. Andreas Malm, *Fossil Capital*, Verso 2016.

AUSTRALIA

CONSERVATION MANAGEMENT OF RYDE WATER PUMPING STATION

Philip Bennett, Lead Heritage Adviser, Sydney Water

One of Australia's largest and most interesting pumping stations pumps water in the suburb of West Ryde in Sydney. The station belongs to Sydney Water, the corporation that provides water and sewage services to all Greater Sydney, the Blue Mountains, and the Illawarra regions in New South Wales. This encompasses a population of over five million people. Ryde water pumping station was built to

supply the rapidly developing suburbs north of Sydney harbour. Today, about 700,000 households receive their water from the Ryde pumping station.

The first coal-fuelled and steam-driven pumping station was constructed 1893. The site is adjacent to the city's northern



The Ryde water pumping station.

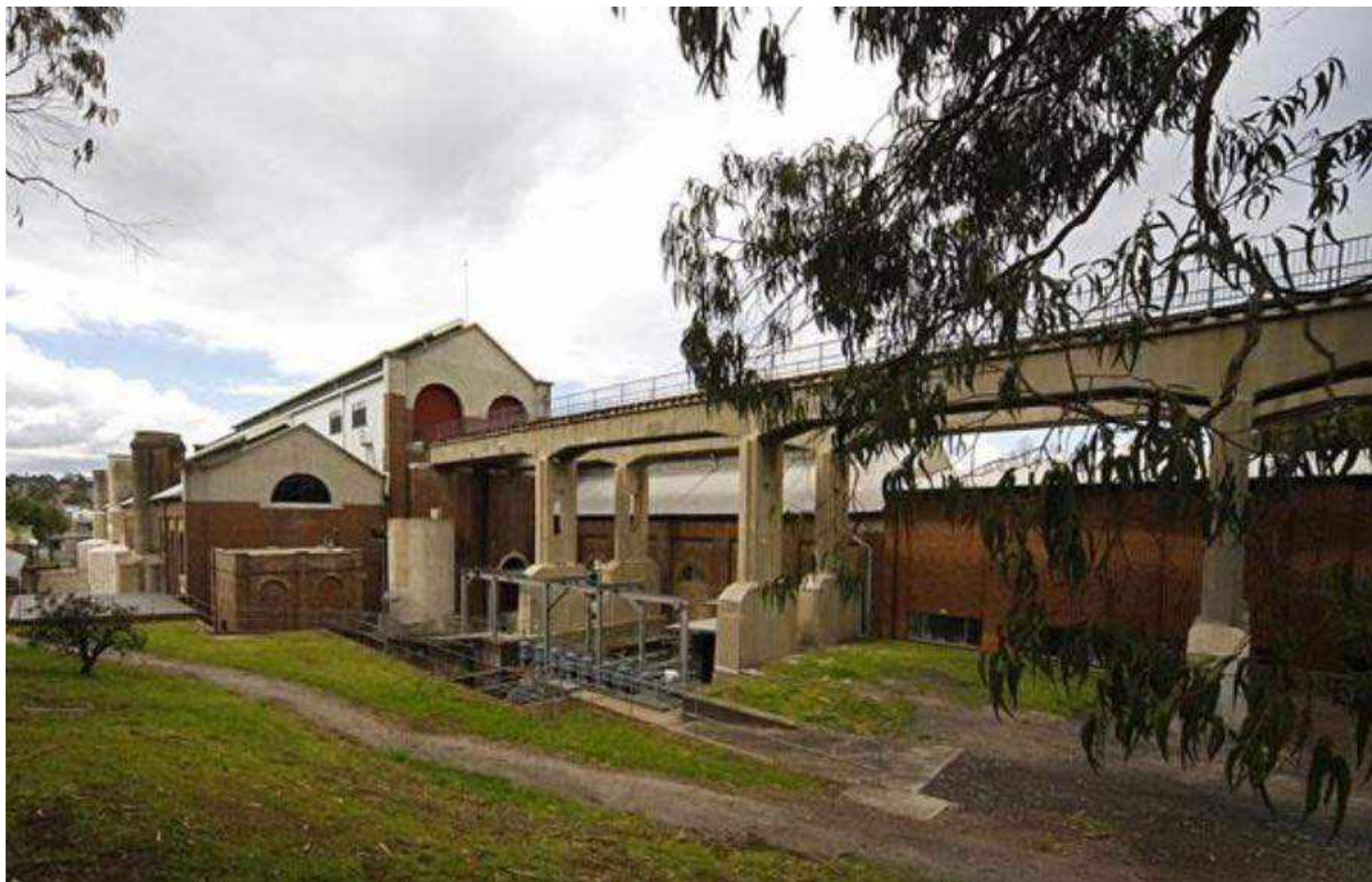
rail line allowing easy access to the coal fields to the north near Newcastle. By the early 1910s, and like all of Sydney's infrastructure at the time, the population was outpacing capacity and a new larger station was needed. Interrupted by the First World War, the construction of Ryde pumping station No 2 started in 1916 although confusingly the date of 1919 is rendered in letters across its entry. The difficulty in acquiring materials after the war and the scale and complexity of the structure meant it wasn't finally completed and commissioned until September 1921.

Ryde pumping station No 2 was similar to No 1 station, and other pumping stations built in Australia at the time. The ample supply of coal meant the new station would also employ steam driven turbines fuelled by coal. What makes the Ryde pumping station so unusual is that the coal was delivered directly into the building above the boilers via a rail system that accesses the roof area of the boiler house. It has two rail lines in the upper level of the boiler house, an area known as the 'coal staithe', allowing the wagons of coal to be shunted into the building at this high level. The wagons were then opened allowing the coal to drop through the hoppers, falling directly down onto the chain feeders of the boilers below. As far as we can ascertain, it is the only water pumping station in the world with this configuration. Probably because the coal is stored directly above the boilers and easily caught fire. One man burnt to death in a hopper when

the coal ignited. A very large water main was installed in the coal staithe area to douse these fires.

Station No 1 was demolished in the 1960s. Ryde water pumping station No 2 was converted to electricity over a six-year period from 1975 to 1981. When the coal system was finally turned off, the remaining boilers, economisers and all associated machinery were scrapped leaving only holes in the boilerhouse floor to indicate their presence, but the coal staithe, hoppers and rail viaduct survived largely intact. The boiler and economiser houses were then allowed to fall into disrepair. The remaining and original asbestos shingle roofs slowly collapsed making the entire site including the operational pumping hall unsafe. The proposed solution at the time was to demolish all parts of the building that were no longer required.

Ryde water pumping station No 2 was State heritage listed in 2002 by the NSW Heritage Council: ... *highly significant as an integral component of the water supply system to much of Sydney. At its completion it was the largest water pumping station in Australia, and today retains considerable fabric and work practices which can be interpreted from that period. While much of the significant plant and equipment has been removed and replaced, it still maintains the overall function and values it was designed for. The significant curtilage includes only the buildings, works, archaeological evidence, machinery and equipment, sheds, and cultural landscape elements (including paths, drives, plantings etc.) up to 1930.*



The rail viaduct leading into the coal staithe inside the boiler house following conservation works in 2008.

It was fortunate that the listing was placed over the station and site as Sydney Water was considering demolishing the former boiler and economiser houses, including the coal staithe and the rail viaduct, leaving only the functioning pump hall, now powered by electricity.

The State heritage listing empowered the NSW Heritage Council to stop the proposed demolition. In 2004, planning commenced for making the building safe. Removing all the asbestos was the priority. Apart from the asbestos roofing, friable asbestos lagging had been used extensively for insulating the pipework and for filling voids in the brickwork. Over \$3 million was spent decontaminating the building and the greater site.

Next, the roofs over the boiler and economiser houses were replaced with sheet metal, regrettably the proposed fibrous cement shingles imitating the asbestos shingles were rejected on cost and supply considerations. Other works to follow included conserving the concrete rail viaduct, earthquake strengthening the building, making the interior spaces vermin (pigeon) proof, fixing the steel framed windows, and replacing most of the timbers due to termite damage and the past use of DDT.

The large boiler and economiser spaces remained empty for several

years and this led to various designs being proposed to convert them into offices, laboratories, and warehousing. None of these came to fruition with objections from the station managers, site engineers and the heritage team wanting to keep the building in use as a pumping station only. In 2016, the Ryde pumping station was nominated and accepted as a National Engineering Achievement and an 'engineering heritage marker' was placed on the building. Three years later the large empty spaces were identified as being suitable for the much-needed additional variable electrical speed drives. This was the perfect use. The coal power area would now be used to house some of the electrical power componentry.

Australia's heritage conservation practice is based on the 1979 Burra Charter, an adaptation of the Venice Charter using cultural heritage significance criteria. The Ryde pumping station is recognised for its engineering (technical), social and aesthetic values. The building is a landmark in the area and has long association with maritime engineering. The former sounds of the site-specific locos plus the smoking chimney stacks are well remembered in the local and greater Sydney communities.

The pumping station is really seven pumping stations under one roof. There are seven pairs of pumps, one as back up, that deliv-



The recently-conserved coal staithe level in 2008. Sydney Water conducts tours, the highlight of which is the coal staithe area. This gives evidence to the station's rail heritage and the unique design and the strength of its structure that can support two locos with their coal-filled wagons.

ers water via a dedicated main to a corresponding reservoir site. Over time the system has been fully integrated, so if both pumps fail water can be supplied from a neighboring reservoir. The pairs of pumps are named after the reservoirs they supply, e.g. Pymble, Mobbs Hill. It continues to operate today, uninterrupted during its 100-year history.

Having undergone its biggest changes with electrification, the station continues to need adaptations and modifications. An old-timer who worked in the station in the 1950s mostly remembered the improvements made for safety purposes. Railings and barriers were installed, and the workers were supplied with protective boots and clothes. Today, the changing and improving health and safety regulations requires safe walkways be added to the roof exteriors and for new access stairs to be installed. The station once employed 50 men at any one time to keep it pumping 24 hours, but now it is operated and managed off-site via a telecommunication system and control centre located in a Sydney Water office some kilometres away.

Sydney Water has a long history, being established as the Board of Water Supply and Sewerage in 1888 (NSW). It manages and owns a vast network of pipelines, pumping stations, reservoirs, and treatment plants, over 160 of which are heritage listed at the Local level and 58 at the State level. There are some contenders for National listing such as the Ryde pumping station but at this stage only the Australian Institute of Engineers has awarded this recognition.

Having such a large portfolio of heritage-listed assets, Sydney Water is unlikely to push for additional layers of Commonwealth powers to regulate the station and site. The State Heritage Act is powerful as all changes that impact the fabric of the station need external NSW Heritage Council approvals. Sydney Water, as a responsible manager of its heritage assets, has certain delegations under this Act, allowing it to approve certain works that are deemed to not have a 'material affect'. Keeping the station operating for the purpose for which it was built is the position taken by Sydney Water that underpins all the decisions made in regard to the conservation of the station.



Sampaio, Ferreira & Co between 1948 and 1954. (Portuguese Centre of Photography)

PORTUGAL

MEMORY AND INDUSTRIAL HERITAGE: SAMPAIO, FERREIRA & CO.

Guilherme Pinheiro Pozzer, University of Minho

Founded in 1896 in Riba d'Ave by *Narciso Ferreira*, *Sampaio, Ferreira & Co.* was one of the main textile factories in the Ave River Hydrographic Basin and is an exemplary case of both its industrialization and deindustrialization. After a period of decay, the company declared bankruptcy and ceased its activities in 2005. This was followed by the abandonment, progressive degradation, and partial ruination of its facilities which, in parallel, were being resignified as industrial heritage, as well as other

infrastructures connected to the actions of *Narciso Ferreira* and his heirs in Riba d'Ave.

The heritage discourses about *Sampaio, Ferreira & Co.* were built upon memory narratives that were already established in the city, and which took different forms in different periods since its foundation. The very resignification of *Sampaio, Ferreira & Co.* (and other infrastructures) as industrial heritage in the early 2000s was one of the forms assumed by these hegemonic memory narratives.

Chronicles were written periodically to remember *Narciso Ferreira* after he died in 1933 and the factory itself sought to symbolically consolidate an image of progress that was in line with the values for which its founder would come to be remembered. The factory buildings, as material culture, were not mere passive consequence of changes in production needs, but actively participated in the political and social strengthening of the company itself and of the *Ferreira* family in Riba



The partially abandoned and ruined Sampaio, Ferreira & Co textile mill.

d'Ave, even having changed the dynamics of local power. It was commonplace to remember the factory as a catalyst for social impacts as it sponsored the school, hospital, theatre, market, etc. Monuments and industrial photography collections, the factory architecture with its art deco aesthetics, as well as the urban space and the local infrastructures sponsored by the Ferreira family, reference values associated with Narciso Ferreira and his heirs.

The historical discourse surrounding *Sampaio, Ferreira & Co.* was homogenized by the hegemonic memory narratives. It also disregarded conflicts, subjectivities, individualities, idiosyncrasies, the multiplicity of experiences (physical, psychological, and sensorial) etc. that historically arise in an urbanized and industrial space.

In this process, these narratives not only reinforced an idealized view of the past but also silenced dissonant voices, *actively forgetting* perspectives that did not positively exalt Ferreira and his company. The hegemonic memory narratives softened the reality of working conditions and social relationships intrinsic to the industrial environment, including conflicts between Ferreira and his workers, who were mentioned as no more than supporting actors in the industrial history of Riba d'Ave. Likewise, conflicts with the government due to systematic non-

compliance with industrial legislation, pollution on the Ave River, the lack of safety standards, have always been hidden or minimized as the consequences of industrial development.

Hegemonic memory narratives, through their different forms, are part of the “symbolic capital” transmitted by Ferreira and shows that they functioned as instruments of political strengthening of the groups that made use of them, whether they were his direct heirs (his sons), or symbolic heirs (public and private institutions that make use of his heritage), and contributed to maintaining the hierarchy or controlling social memory in the locality.

Making use of the memories was therefore, at the same time, an instrument and a strategy of power. By having these memories as pillars to the heritage discourse, the heritage-making process and actions functioned in the same way, since they were organized vertically, with little to no participation by the local community in decision-making. This was clear from the factory's role in the failed *Ave Basin Industrial Heritage Route* (early 2000s), on the celebration of Narciso Ferreira's 150th birthday (2012), the international contest of ideas to revitalize its abandoned space (2016), which only allowed architects to participate, and on the *Museum of Living Memory* which

was inaugurated by the *Narciso Ferreira Foundation* (2019) with the main focus in the Ferreira family.

In addition, heritage discourses updated the hegemonic memory narratives and turned them into a model to face the economic crisis and social struggles of the present (such as deindustrialization and unemployment), using them as the basis for positive perspectives of the future. After all, the degradation and material decay of the factory's industrial heritage is a threat to the hegemonic narratives' promise of progress, and to the symbolic, political, and social power structures they helped to shape.

Therefore, heritage making and actions themselves became manifestations of hegemonic memory narratives as a way to perpetuate them and ensure the survival of their symbolic and political capital. Although part of Sampaio, *Ferreira & Co.* has been reused, it suffered both from aesthetic changes and from the absence of a project to include the community in determining its use and conservation. This isolation prevents the industrial heritage from fulfilling its social function and reduc-

es its potential to impact socially and culturally. It also prevents it from effectively promoting relationships with the surrounding community and from disseminating knowledge about itself.

The role of *Sampaio, Ferreira & Co.* on the industrialization of the Ave Basin would be enough to highlight its historical importance. However, its singularity lies in the fact that, over time, its own built material culture became a manifestation of hegemonic memory narratives which also structured and shaped the economy, the politics, the social life, the urban space, and symbolic aesthetics in Riba d'Ave, even after being partially abandoned and degraded.

In this regard, understanding the memory making process of industrial heritage may contribute not only to valuing it but also to highlight the importance of including post-industrial communities in heritage making debates by pluralizing the ways in which citizens can relate to their heritage.

[Contact the author](#)

RUSSIAN REPUBLIC

SYSSERT IRONWORKS: HISTORY AND CURRENT TRANSFORMATIONS

Andrey Burganov, Anastasiya Biryukova and Nadezhda Solonina, Ural States University of Architecture and Arts, Yekaterinburg

The Sysert ironworks was founded in 1732 and became the last Ural state-owned enterprise built by the mining chief Georg Wilhelm de Gennin. The plant was supposed to be the finale of his activity in the Urals, therefore, the main plant in Ekaterinburg plant with an emphatically regular building and a strictly rectangular fortress in the plan was

chosen as a prototype. This fact became a unique feature of Sysert, distinguishing it from other 18th century Ural company towns. The only surviving architectural object of that period is the school building of 1735, one of the oldest stone buildings in the Urals.



Panorama of the Sysertsky plant from 1890s. In the center is the blast-furnace shop built in 1847, behind it are the Simeon-Anninsky church and main factory administration (the white building) from the late 1770s. State Archives of the Sverdlovsk Region.



View of the open-hearth shop, built in 1894.

After de Gennin, the period of state management was characterized by low productivity, and the enterprise was transferred to the salt industrialist A F Turchaninov in 1758. He expanded the range of manufactured products by building additional processing shops, and also merged the Sysertsy plant with nearby Seversky and Polevskoy plants into the mining district. Thanks to this, the plant became one of the most successful in the Urals. Today a few cast-iron wall tie plates inscribed 1764 on the slope of the dam are reminders of the modernization carried out by Turchaninov, with *significant* objects such as the Simeon-Anninsky church and main plant administration.

After Turchaninov's death in 1787 a long period of division of property between the heirs began, by the 1840s the economy at the plant was carried out by three managers at once, and there were two manor houses. The productivity of the enterprise declined. Turchaninov's grandson, P.D. Solomirsky received most of the plant by inheritance in 1847, and the plant was modernized and expanded. A new blast-furnace shop (the central semantic element of today's historical center), puddling and rolling shops were built, as well as Verkh-Sysertsy and Ilyinsky processing plants. However, the subsequent change of the manager a new period of decline followed which lasted until the closure of the plant. The reign of the last plant owner, D.P. Solomirsky was marked by minor improvements in production that did little to get the plant out of its dire situation, although the open-hearth shop that became a significant part of industrial ensemble was built.

At the beginning of the 20th century, the plant was obsolete, while production was further complicated by the revolutionary situation in the country. The nationalization of the plant that followed the October Revolution did not contribute to overcoming the crisis, and in the last years of its operation, the metallurgical production was in the concession of the British company Lena Goldfields Ltd., which did not want to modernize the plant. In addition, the old industrial area, surrounded by town blocks and natural obstacles, did not have the opportunity for further expansion. The result was the closure of production in the 1930s and the creation of a new town-forming enterprise in the eastern part of Sysert. In the second half of the 20th century, small machine-building production was organized in the workshops of the Sysert plant, and the old dam was reconstructed, but there was no radical reorganization of the historical industrial site.

In the post-Soviet period, the territory was increasingly overgrown with various industries that used part of the historical buildings, or formed a chaotic system of trade and production pavilions for their needs. This process negatively affected the appearance of the territory but did not violate the main architectural parameters of the environment. Thus, at the beginning of the 21st century, the territory of the ironworks still retains the state in which it was at the end of the 19th century. The same can be said about the entire historical center. The main architectural and meaningful elements of the space, as well as the historical character of the town development, have been preserved,



Summer activities at the Plant.

which, together with the adjacent plant pond and Bessonova Mountain, forms the image of the Ural company town of the 19th century.

The preserved historical appearance, as well as the proximity of Sysert to Ekaterinburg, led to the recent public movement to revive the abandoned industrial area as a cultural center of the town, supported by the local administration. The territory of the plant has become a key element of the strategy of social and economic development of the Sysertsky district as a tourist cluster. Since 2018, the historic town center has begun to be transformed. The area was cleared of trees, which obscured the panorama of the plant, and a tourist information center was opened on the dam. Conceptual projects for the improvement of the territory in a creative cluster with public and commercial spaces were presented. At the moment, the improvement of the dam has already been completed, thanks to a presidential grant. Despite the lack of a source of funding for the reconstruction of the industrial site,

the seasonal festival Summer at the Plant, which is a practice version of the planned creative cluster, was held on the plant territory for the second time. The organizers were inspired by European examples of 'tactical urbanism' for territory transformation. This is how the zones for a food court, master classes, theatrical performances and open-air exhibitions were created. Also, in the walls of the open-hearth shop, an author's museum of the Sysert plant was organized with a demonstration of various artifacts of the enterprise's history.

These processes reflect the residents' need for such historical and cultural spaces and their interest in the past. However, it is necessary to formulate an elaborate investment program with a master plan for the development of the entire historical central part of the town, based on the understanding of the Sysert plant as a unique monument of the Ural industrial heritage.



Arvida company town in 1945, Picture Lalime, Particular Collection (NHS, 2012)

CANADA

INDUSTRIAL HERITAGE IN CANADA (PART I): A NECESSARY INVENTORY

Alain Gelly

As we approach the TICCIIH Congress in August, Parks Canada historian Alain Gelly explains the background to industrial heritage in Canada.

As a 'continental country' in which, with the first part of the 19th century, industrialization began, mining intensified, and the transportation infrastructure became denser, Canada still possesses an important industrial heritage. Scattered over a vast territory but mostly concentrated along the border with the United States, this heritage is difficult to understand in the absence of a comprehensive national inventory. An inventory of manufacturing sites was established by Parks Canada in the late 1980s. Aiming to establish the country's then-existing manufacturing heritage, the Historic Manufactures Centres Project examined 267 manufacturing

complexes in 60 industrial towns from a sample of 511 industrial towns and villages from the period 1880 to 1939. Of these, it further evaluated 15 manufacturing complexes (11 in Ontario and 4 in Québec) in the industrial heartland of the country. Using an eight-criteria evaluation grid, the Montréal portion of the Lachine Canal Industrial Corridor was finally selected and designated by Canada in 1996 as a national historic site.¹ It does not, however, cover aspects of industrial heritage such as landscapes and engi-

1. Felicity Leung et al. 1990. *Manufacturing Locations in Canada: The Identification and Evaluation of Significant Multiple-Industry Manufacturing Complexes*. Ottawa: Historic Sites and Monuments Board of Canada. See TICCIIH Bulletin.



Windsor Station, Montréal, 2021 (HRS, 1990)

neering works, among others, and it has never been updated. With the acceleration of deindustrialization and urban redevelopment, the industrial manufacturing heritage identified more than forty years ago is at risk of being seriously altered or even destroyed.² It is the same for the hundreds of company towns such as Arvida where, if inventories exist,³ the fate of their industrial heritage, which is fluctuating from abandonment to heritage-making (patrimonialization), requires constant updating.

In this sense, the inventory of historic places in Canada recognized for their heritage value is a first step in the constitution of a national inventory, a catalogue that is not only exhaustive but also constantly updated. It is a first step, because although this site managed by the Parks Canada Agency lists only 12,300 of the 17,000 designated sites, the country's industrial heritage is not limited to what has already been designated.

Heritage Legislation

Canada being a confederation, approaches to the protection and the safeguarding of its industrial heritage differ according to the

provinces and the territories of the country. Without going into all the specifics of the Canadian constitution, it is important to know that both the federal government and the provincial and territorial governments can designate, protect, and present industrial heritage. And this is without counting the municipalities, which can also issue heritage designations. Thus, there are national, provincial, and municipal historic sites, federal and provincial heritage buildings, heritage train stations, and heritage lighthouses. In other words, there is a range of possible designations. Moreover, depending on their jurisdiction, the various levels of government provide either comprehensive or symbolic protection for the designated site or place. That said, the number of heritage buildings in Canada that require maintenance far exceeds the capacity of governments to preserve and protect them.

2. As of 2021, more than 20% of Canada's heritage buildings have been destroyed.

3. Lucie K. Morisset and Jessica Mace. 2019. *Identity on the Land: Company Towns in Canada*. Montréal: Éditions Patrimonium.



Québec Bridge, Québec, 2021 (NHS, 1995)

In Canada, there is no federal heritage legislation, although a heritage protection and enhancement bill is currently being considered. Without legal protection, heritage conservation is often relegated to the back burner when the pressure to carry out a development project is too great. Faced with this fragile heritage, the Canadian population is not insensitive when an iconic industrial facility is threatened with destruction. Far from being confined to a single location, the defence of industrial heritage has national repercussions, so much so that it even led, at one time, to the adoption of a federal law aimed at protecting an important part of it, that of railway stations.

Here, some background is in order. In the 1960s, the vast rail network forged since 1836 was undermined by streamlining of the railway companies. Sections deemed unprofitable were closed, a number of stations fell into disuse and others were demolished. Although certain citizen actions, such as those carried out by a group dedicated to saving Windsor Station in Montréal in the early 1970s, were successful, the Canadian population remains concerned about the preservation of heritage railway stations. Voices are being raised for legislation to protect them.

Since most railways are federally chartered, such legislation can only be federal. In 1988, in a rare event in Canadian parliamentary history, a private member's bill, the *Heritage Railway Stations Protec-*

tion Act, received Royal Assent. Since then, all railway stations that are at least 40 years old, owned or operated by a railroad company, and built or used for the transportation of people and goods, can be designated as heritage railway stations. The Act states that 'Unless authorized by the Governor in Council, no railway company shall

(a) remove, destroy or alter or sell, assign, transfer or otherwise dispose of a heritage railway station owned by it or otherwise under its control; or

(b) alter any of the heritage features of a heritage railway station referred to in paragraph (a) '

Since the 1990s, more than 300 Canadian railway stations have been the subject of extensive research reports to be analyzed by the Historic Sites and Monuments Board of Canada. As of 2021, 164 stations have been designated (see the Directory of Federal Heritage Designations). Although other remarkable witnesses to the past have been designated, such as the Québec Bridge, their preservation is uncertain since it depends on the level of government that issued the designation. In addition, in 2008, the Canadian Parliament adopted a law to protect and conserve heritage lighthouses, which has led to the designation of 106 of them.

Heritage-making (*patrimonialization*)

The Historic Sites and Monuments Board of Canada was established by Order-in-Council in 1919, thereby launching the federal government's program of commemorating persons, places, and events of national historic significance. In 1953, the Historic Sites and Monuments Act provided a legislative basis for federal action in this area. In 2021, Canada boasted a network of 2,186 sites of national historic significance that have shaped the country's history. Unusual in the world, this network commemorates not only places (971) but also events (496) and persons (719) of national

historic significance, 134 of which correspond to the definition of the Nizhny Tagil Charter for the Industrial Heritage. In this network over time, where the unique heritage object rubs shoulders with the representative example of a particular industry, its preservation poses a major challenge, all the more so since the administration of the network of national historic sites is shared among various stakeholders. Of the 971 national historic sites designated to date, Parks Canada manages 174, of which 21 are related to industrial heritage. In the next section of this article, we will focus on some of these sites.

TICCIH NEWS

AUSTRALIA

THE AUSTRALIAN NATIONAL SCIENTIFIC COMMITTEE ON INDUSTRIAL HERITAGE

Keith Baker, co-convenor of the joint TICCIH-ICOMOS committee

A joint TICCIH and ICOMOS committee on industrial heritage has operated in Australia for the past three years in the form of an Australia ICOMOS National Scientific Committee (NSC). The Australia ICOMOS Executive Committee, at its February 2018 meeting, approved the establishment of the ICOMOS-TICCIH NSC on Industrial Heritage. TICCIH Australia members also showed support for the formation of this committee, consisting of members of both

ICOMOS and TICCIH with the aim: *To be a voice for industrial heritage arguing for the preservation, conservation, investigation, documentation, research and interpretation of our industrial heritage!*

This action followed discussions at the international level of ICOMOS on greater involvement and emphasis on industrial heritage, championed in 2014 by the ICOMOS Ireland NSC proposing the



The Pambula Co-operative Creamery and Butter Factory, erected in 1898 but no longer existing. Image www.monaropioneers.com/



Tasmania West Coast Abt rack railway, originally transporting ore from Mt Lyell mine to the coast. 2011

formation of an ICOMOS International Scientific Committee (ISC) on Industrial Heritage which would operate complimentary to TICCIH. An earlier agreement between ICOMOS and TICCIH on what was known as the [Dublin Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes](#) had been adopted in 2011.

The Australian NSC on Industrial Heritage got underway in 2018 with 13 members who applied variously from TICCIH and Australia ICOMOS as members, and associate members from Engineering Heritage Australia, ICOMOS New Zealand and a university supporter of the Big Stuff series of museum conferences. Meetings have regularly been held electronically as well as face to face in conjunction with ICOMOS Symposia and Conferences in Hobart and Canberra. Coordination of the NSC was initially undertaken by Dr Iain Stuart, Board member and the Australian National Representative of TICCIH based in Sydney, but with members in Sydney, Melbourne, regional Victoria, Canberra and Hobart meetings were restricted to telephone other than a brief informal meeting on the margin of a heritage of science symposium in Tasmania. In Novem-

ber 2019 a face to face meeting was convened in conjunction with the ICOMOS conference on the heritage of the air in Canberra, at which Megan McDougall and I were elected joint convenors of the NSC. Tentative plans were made for shared travel for meetings to be held in different Australian states, involving inspection of industrial sites, but COVID-19 put a stop to that, and all meetings have been held by ZOOM since then.

The first project to be undertaken by the NSC has been a pilot mapping of industrial heritage on the south coast of New South Wales, particularly the dairying industry. This pilot demonstrated that current heritage lists were incomplete and of little use to the committee, having largely ignored the importance of the dairy industry in Bega Valley for example. While there were non-industrial buildings that had received heritage recognition and reconstructions of milk and cheese factories for commercial purposes, little had been recognised or even remained of original milk processing equipment and transport networks. A more structured approach is being developed through the pilot that considers the origin and evolution of the industrial heritage by location.



Mort's Dock Steam Crane (1891), Cockatoo Island, Sydney, NSW, 2018



Bendigo (Victoria) Gas Works with 1875 spiral gas holder in foreground. 2021

A second project being undertaken in parallel is developing a practice note on industrial heritage to accompany and amplify the Australia ICOMOS Burra Charter. The Burra Charter is widely recognised for dealing with the significance of historic places and includes objects where they contribute to the heritage values of the place, while the Dublin Principles which form the foundation of the joint NSC recognises machinery and objects and industrial processes which are not necessarily tied directly to a particular site. The approach being taken in preparing the practice note is to look at issues with industrial heritage which are not well understood and apply the methodology and principles of the Burra Charter and illustrate good practice using examples which are consistent with the content of the Dublin Principles.

NSC meetings generally include discussions on Australian industrial sites under threat, at times involving individual support or advocacy by Australia ICOMOS. NSC meetings normally conclude with a pre-

sentation by members on industrial projects and sites where they have been involved or issues in which they have a current interest. Presentations have ranged from conservation of an intact gas works, operation of a water supply system incorporating historic features, to ecotourism opportunities at a remote mountainous gold mine in NZ.

While under the auspices of Australia ICOMOS, the NSC has maintained contact with TICCIH and other affiliated organisations with shared objectives. A highlight was the participation in our February 2021 meeting of TICCIH President Dr Miles Oglethorpe from Scotland and Secretary General Prof Dr Marion Steiner from Chile. Liaison has also occurred with the Asian Network of Industrial Heritage and a number of members have participated in the TICCIH Global Members Meeting in September 2021 via ZOOM. The NSC recently called for new members and the increased membership is expected to strengthen the voice for industrial heritage within the conservation profession and in the community more generally.

AUSTRIA

INTERNSHIP AT TICCIH AUSTRIA: CONSTRUCTIVE NOT CONFRONTATIONAL

Enikő Charlotte Zöller

Which industrial buildings are located in urban space and in cities, and where can they be found? Which buildings and objects are necessary to highlight the interweaving and interdependency of industrial processes in a visible and comprehensible matter? Which of the criteria for selection and evaluation that so far have been based on superlatives must we change to enable us to set the individual elements in fair and balanced interpretive relationships to one another? How can cultural heritage be used to create awareness of global relationships? Moreover, how can we ensure that tomorrow's heritage is based less on the values of nation-states, as for example in my home country in Hungary, than on strengthened European and global values?

My generation grew up with the self-evidence of *industriekultur*, a word that had by now almost become mainstream and hype. The meaning of the word of our age, *industriekultur* can be bestowed in every context, from underground parties in a former spinning mill to the contentless marketing strategies of cities.

As a student, the semesters generally come and go and at the end one is left with vast amounts of continuing questions. At the Bauhaus-University in Weimar, we examined with future urbanists whether industrial modernism and its architectural representations can be regarded as heritage and if so, to what extent? After the semester, I did a sixteen-week Erasmus+ internship at the Austrian representation of TICCIH in Vienna from April to June 2021, despite pandemic restrictions.



ENIKŐ CHARLOTTE ZÖLLER



The Heller factory converted into a residential complex and a geriatric centre, 239 residential properties in ownership and rental and 268 care places.

The practical and direct engagement with industrial buildings in Vienna and the mentoring by TICCIIH Austria enabled me to explore these questions through the built environment. In Vienna, one quickly realises that industrial heritage is genuinely of global dimension and hence. To quote US sociologist and philosopher Immanuel Wallerstein, no part of the world has been outside our 'Modern World System'. Different regions still take on certain specific roles in the economically functional unit and thus, industrialisation continues to this day. Production sites have not disappeared, they have rather been relocated to other sites of the global industry. The examination of industrial heritage leads to questions and messages such as the exploitation of people and nature, as well as the unjust division of labour worldwide. Both of which are also major motives for refugee movements and migration.

I find industrial heritage, especially 20th century production facilities exciting, due to them constituting borderline areas of heritage conservation. By exploring the Heller chocolate factory in Vienna-Favoriten, I have tried to understand and trace the industrial his-

tory of the district. The diversity of industrial production in the concentrated space south of Vienna's main railway station in Vienna-Favoriten was enormous and required a great quantity of labour leading to the construction of cheap substandard housing. Large tenement blocks were built in the outer districts, including Favoriten, for all those craftsmen, construction workers and tradesmen who had moved to the imperial city from the middle of the 19th century and were confronted with acute housing shortage there. At that time, one third of all Vienna's inhabitants had no flat of their own and had to find a place to sleep as bed-riders or find shelter in the city's emergency quarters or even in the canals. The living conditions of the workers in the nearby industrial complexes were dire and hence, Favoriten, the district south of today's main railway station, was the scene of spectacular protests by the workers several times in the early days of the workers' movement.

The example of the Heller factory demonstrates what role conservation can play in the cultural heritage discourse. The site of the production plant of the famous jam-filled sweets was given a

new concept under the auspices of BUWOG (Bauen und Wohnen Gesellschaft - 'Better Living for Generations'). The focus of my examination was the shortening of the factory chimney to 29 m due to the earthquake structural safety requirements, and an attempt to integrate the chimneys into the discourse about the city skyline in Vienna. This revealed new approaches to the hierarchisation of heritage values, which are constantly being questioned. At this point, the internship helped me to question value categories and standards, and to emphasise and discuss productive disturbances between different generations: 'The concept of Heritage, in contrast to the concept of monument, does not act on the assumption that there is an object with various formal characteristics. Instead, it assumes that there are people who relate to objects in various ways', Gabi Dolff-Bonekämper succinctly summarised it. This examination confronted me with urgent questions of our time, such as citizen participation and sustainability in heritage management. The number and variety of industrial sites in Vienna alone, the buildings and

technical facilities that have a monumental value and their conversion, show both a relevance for the preservation of monuments as well as for urban planning and architecture, and especially for the necessity of a productive interface between these areas. The actors involved in the preservation of historical monuments, such as planners, architects, the official preservation authorities, interested citizens and owners, all have different interests and approaches that need to be respected and brought together.

The internship at TICCIH has enriched me greatly. The opportunity to deepen my existing passion for the field of industrial heritage conservation at TICCIH during the internship opened up new horizons not only for my personal interest, but also for productive interfaces in the future that can ensure critical and value-oriented conservation and the conversion of industrial heritage.

[Contact the author](#)

WORLD HERITAGE ISSUES

UK

URBAN LANDSCAPE AND THE DELISTING OF LIVERPOOL – MARITIME MERCANTILE CITY

Dennis Rodwell, Architect-Planner, Consultant in Cultural Heritage and Sustainable Urban Development

I have followed the Liverpool World Heritage story since the turn of the millennium, from the preparatory stages leading to the 2003 nomination onwards. At times this has been at close quarters, through direct connections with the responsible personnel in Liverpool City Council, the UNESCO World Heritage Centre, and the International Council on Monuments and Sites (ICOMOS). Much of what has been represented as central to the unfolding saga, institutionally as well as in the public domain, does not correspond with my familiarity and records.

The 2021 delisting of *Liverpool – Maritime Mercantile City* serves to call attention to the challenges of managing urban heritage sites that are inscribed in the UNESCO World Heritage List, especially those that are subject to vibrant development pressures. This article focuses on the procedures involving the UNESCO World Heritage Centre and its advisory body ICOMOS from the 2003 nomination through to the 2021 delisting. It questions whether the system helped or hindered the management of the property, and whether it is appropriate to focus responsibility for the discord that led to the delisting on the State Party (the United Kingdom) alongside Liverpool City Council.

Liverpool – Maritime Mercantile City is the third property to be struck from the UNESCO World Heritage List. The 2007 delisting of the

Arabian Oryx Sanctuary, inscribed in 1994, is easy to explain: the site had become unviable as an oryx sanctuary, and the delisting was supported by the State Party (Oman). The 2009 delisting of *Dresden Elbe Valley* together with the 2021 delisting of *Liverpool – Maritime Mercantile City* are less easy to justify; both were opposed by the State Parties concerned, Germany and the United Kingdom respectively.

The preamble to the 1972 World Heritage Convention demands 'an effective system of collective protection of the cultural and natural heritage of outstanding universal value, organized on a permanent basis and in accordance with modern scientific methods.' The operation of this system requires what I term the 'Critical 3Cs of Effective Protection: Certainty, Clarity, and Consistency'

The path to inscription in the UNESCO World Heritage List entails a State Party's preparation and submission of a nomination, its evaluation by the relevant advisory body, and its determination by the World Heritage Committee. This is a linear process. There is no provision for back stops or return loops. As a matter of clear principle, if something is not in the Justification of Outstanding Universal Value (OUV) at the time of inscription, for whatever reason, it is effectively not part of the OUV.



Liverpool waterfront, 2007. The nomination document avers that the Pier Head Group 'form a dramatic manifestation of Liverpool's historical significance ... [whose] vast scale ... allows them to dominate the waterfront when approaching by ship'. (© Dennis Rodwell, 2007)

The delisting of *Dresden Elbe Valley* in 2009 is attributed to the construction of the *Waldschlößchenbrücke* across the river Elbe. The project for a bridge at this location first appeared in the Dresden General Construction Plan of 1859–62. The 'as-built' design project featured in the 2003 nomination for *Dresden Elbe Valley*, was endorsed in the ICOMOS evaluation that supported the site's inscription in 2004, and its subsequent construction provoked the delisting. This case is a contested precedent.

The City of Liverpool has known widely fluctuating fortunes. Ascendant from the late 18th to early 20th centuries and heralded as the 'Second City of the Empire' (after London), its descent following the First World War was perceived at times to be terminal. From the 1990s onwards, a coincidence of interests invoked the ambition for Liverpool to recover the status of a 'World City', effectively from a standing start. This anticipated a volatile situation, with the clear potential for a heritage versus development conflict. The dynamics called for extreme care, and clear adherence to the 'Critical 3Cs'.

- 1999 Entered in the United Kingdom Tentative List
- 2003 Nomination and Management Plan
- 2004 Inscription in the UNESCO World Heritage List
- 2005 UNESCO Vienna Memorandum: Managing the Historic Urban Landscape
- 2006 First UNESCO-ICOMOS Mission: focus, Museum of Liverpool and Mann Island

2011 UNESCO Recommendation on the Historic Urban Landscape

2011 Second UNESCO-ICOMOS Mission: focus, 'Liverpool Waters' project

2012 'Liverpool Waters' approved by Liverpool City Council

2012 Inscription in the UNESCO List of World Heritage in Danger

2021 Everton Football Stadium at Bramley-Moore Dock approved.

2021 Delisting of Liverpool – Maritime Mercantile City World Heritage Site

Table: Liverpool – Maritime Mercantile City World Heritage Site timeline

The inscribed World Heritage Site comprised a total area of 136 ha across six contiguous or linked components; the buffer zone totalled an area of 750 ha. A core theme in the State Party's 2003 nomination document and management plan was urban landscape, a term that has been familiar in the management of historic cities across Europe for at least a century. The nomination affirmed that the surviving urban landscape testified to the historical role of Liverpool as a great port city, defined its 'tangible authenticity', and that the focal point, the Pier Head Group, 'form a dramatic manifestation of Liverpool's historical significance ... [whose] vast scale ...



Waterfront view from the seaward approach, 2011. All of the tall buildings in the World Heritage Site have been constructed since the 2004 inscription and the deletion of urban landscape from the criteria for Justification of Outstanding Universal Value. (© Dennis Rodwell, 2011)

allows them to dominate the waterfront when approaching by ship' (Figure 1). The emphasis on urban landscape is such that the term features 49 times in the nomination document. The term historic urban landscape also features; subsequently adopted by UNESCO in the 2005 Vienna Memorandum and the 2011 Recommendation on the Historic Urban Landscape. The boundaries of the nominated site were carefully delineated to the purpose of safeguarding the authenticity and integrity of the property.

The 2004 ICOMOS Advisory Body Evaluation set out the State Party's Justification under *criteria ii, iii and iv*.

For *criterion iii*, this reads: '... The *urban landscape* (this author's emphasis) of the site, including its architecture, layout, dock complexes and transport systems, combined with the comprehensive cultural and historical records held on the site, form[s] a unique testimony to the commercial acumen and mercantile strength of the British Empire in the period from the early 18th century to the early 20th century. No other port in Britain, the former British Empire or the world bears such testimony.'

For *criterion iv*, the documents reads: 'The nominated site is a complete and integral *urban landscape* (this author's emphasis) that includes an outstanding architectural and technological ensemble of buildings, structures and archaeological remains. ...'

Notwithstanding, the same 2004 ICOMOS Advisory Body Evaluation deleted all reference to the *urban landscape* in its recommendation for the inscription of *Liverpool – Maritime Mercantile City*, and it was the ICOMOS text that was adopted by the UNESCO World Heritage Committee, not the State Party's.

The timing for this deletion coincided with contestation between UNESCO and ICOMOS over the nature of urban heritage and the management of historic cities. Through the 2000s, ICOMOS challenged the term urban landscape, formulating and promoting its 2011 *Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas*, contemporaneously and dissociated from UNESCO's Recommendation on the Historic Urban Landscape. In effect, *Liverpool – Maritime Mercantile City* found itself in the crossfire of this dispute.

The implications of the deletion of urban landscape could not have been more serious. First, it signalled to the State Party and the City of Liverpool that the urban landscape was not a factor that determined the inscription of *Liverpool – Maritime Mercantile City* and would not (the correct ethical position) be monitored as such. Given the volatility of the aspiration to recover the status of a 'World City', the impacts of this repudiation on the integrity of the urban landscape were foreseeable and serious.

Second, the 2006 UNESCO-ICOMOS Reactive Monitoring Mission could and did not comment on any issue affecting the urban landscape. This Mission was prompted by projects for the Museum of Liverpool and Mann Island, described the '... state of conservation of the site in its widest urban context, its integrity and authenticity' as 'good', that '... redevelopment initiatives, in progress or proposed, aim at carefully re-establishing the city's coherence through the enhancement of its numerous remaining historical features, the infill of vacant lots and the redesign of the public realm', and that the OUV of the property was not threatened.



Visualisation of the proposed Everton Football Stadium, Bramley-Moore Dock, at the northernmost boundary of the World Heritage Site. Its distance from the Pier Head Group in the middle distance can be discerned. (© Everton Football Club, 2021)

Third, the 2011 UNESCO-ICOMOS Reactive Monitoring Mission, focused on the 'Liverpool Waters' project, invoked – retrospectively by seven years relative to the 2014 inscription – the 2011 UNESCO *Recommendation on the Historic Urban landscape*. This triggered the processes that led to the deletion of *Liverpool – Maritime Mercantile City* from the World Heritage List in July 2021.

At the July 2021 Session of the World Heritage Committee, equating the project for Everton Football Stadium at the northernmost boundary of the World Heritage Site with the 'tipping point', ICOMOS claimed to have lost patience with the State Party and City of Liverpool's alleged failure to comply with ICOMOS's own contradictory decision-making processes. Previously, on 5 February 2020, World Heritage UK had written to the Director of the UNESCO World Heritage Centre proposing as a way forward a boundary change to the World Heritage Site to exclude Bramley-Moore Dock. This conciliatory offer was not taken up.

My view is that the UNESCO-ICOMOS system has, by moving the goal posts between nomination and inscription, demonstrably failed *Liverpool – Maritime Mercantile City*, its management as well as its World Heritage inscription. This strongly suggests that the system's modus operandi has some distance to go before the 'Critical 3Cs of Effective Protection' are recognised and applied, and the World Heritage Centre and ICOMOS need to sort their acts out if the 'mantle of UNESCO stewardship' (as another author has termed it) is to have more merit than Hans Christian Andersen's *The Emperor's New Clothes*.

Author website

Uploaded publications: <https://independent.academia.edu/Dennis-Rodwell>



The famous Veresk bridge has a 66 m span and a height of 110 m and was built without using any metal materials or armature. Photo: Ahmad Jamali M, 2017

IRAN

THE TRANS-IRANIAN RAILWAY: A UNESCO WORLD HERITAGE SITE

Hassan Bazazzadeh,¹ Mohsen Ghomeshi,² Asma Mehan³

The construction of railways has been one of the symbols of the advanced technology and modernity in various societies and is known as a means of expanding and transferring goods, men, and their ideas.

1. Faculty of Architecture, Poznan University of Technology, Poznan, Poland; hassan.bazazzadeh@doctorate.put.poznan.pl

2. Institute of Architecture and urban planning, Lodz University of Technology, Lodz, Poland; mohsen.ghomeshi@dokt.p.lodz.pl

3. Institute of Cultural Anthropology and Development Sociology, Leiden University, Leiden, Netherlands; a.mehan@fsw.leidenuniv.nl

Brief History

During the political-economic circumstances of the second half of the 19th century, the first rail line of Iran was built under the Qajar rule. This was an 8 km railway to connect Tehran to Rey with some small wagons, most local people tended to call it Mashin-Doodi, which translates as Smokey Machine. The railway then appeared in south-west Iran as a means of transport for the oil industry which was booming after oil discoveries in Khuzestan. The intercity railway started to operate in 1923 and was 57 km long, connecting Masjed-i-Soleyman to Dar-i-Kahzineh. It was established for exploitative purposes of foreign states resulting in a few small-scale and temporary projects, but the idea of constructing and expanding rail lines based on national investments finally materialized with

the first national railroad. Soon after the preparation of a massive railway embarked upon the orders of Reza Shah as one of the main infrastructures for modernizing the country.

While it may not be as long or as well-known as Russia's iconic Trans-Siberian Railway, international recognition is long overdue for the 1,394 km route. The Trans-Iranian Railway connects the Caspian Sea in the northeast with the Persian Gulf in the southwest crossing the whole country. The Trans-Iranian Railway was started at the beginning of the Pahlavi period in 1927 and operated in 1938. The railway is a constructional-engineering masterpiece, which passes through eight provinces (Golestan, Mazandaran, Semnan, Tehran, Qom, Markazi, Lorestan, and Khuzestan) with different climates ranging from hot and dry-arid to mild and arid, with 103 train stations, more than 4,200 small and large bridges, and 245 tunnels and accessory across its long journey.

The railway development in Iran is a living history of the modernization and industrialization of the Iranian society through the community link. The preliminary plan of the Trans-Iranian Railway was drawn by Sane al-dowleh, the first head of the National Consultative Assembly of Iran which was then executed by Kampsax, a Danish company that had previously built the railway network of neighboring Turkey.

This project has a bilateral relationship with the development of the whole country. On the one hand it has been heavily depended on the climate of each area as well as the variety of indigenous cultures mixed with local know-how and technology. On the other hand, its role in the transfer of technology, as well as rural and urban development of different regions of Iran is undeniable. To be more precise, using new materials (concrete and steel) in this project had a profoundly deep impact on local industries and heralded the industrialization of Iran. The construction of factories, depots, and accessory buildings along the route and finding a new uses for indigenous materials contacted rural and urban knowledge possible. Construction of factories, depots and accessory buildings along the route and finding a new uses for indigenous materials made contact

possible with rural and urban knowledge leading eventually to the substantial development of urbanization and architecture in each region, such as the Qaem-shahr railroad fabrication factory, which has created an expansive industrial landscape. In the southern part a city was established through establishing a railway station, Andimeshk, which nowadays holds more 150,000 population, used to be a small village. Moreover, between these two main cities there are also bridges, stations and tunnels which should be mentioned as famous landmarks along the route of the Trans-Iranian Railway.

WHS impact

The railway was accepted as a World Heritage site by UNESCO on July 25, 2021, not as a communication path but as a significant part from memory of a committed engineering. It is important to note that recognizing the railway as a World Heritage site emphasizes the outstanding construction of the railway infrastructure in Iran as the symbol of modernization and urbanization of the traditional society.

Moreover, it will inform the national and international community of conditions that threaten the main characteristics and important elements for which the railway heritage is inscribed on the list and encourage a collective and correction action to the potential threats and local neglects. This inscription will preserve the site in the face of problems caused by future uneven and uncontrolled development and construction, man-made and environmental hazards, wars, conflicts and unchecked interventions and modifications. The lack of an integrated and holistic conservation policy is another important factor that should not be neglected by local authorities. The major current challenge for the Iranian railway industry is finding sustainable and culturally resilient solutions for historic infrastructures of the Trans-national Iranian railway heritage that have become substitutes by new operational automations. As the pioneer of industrialization and modern movement in Iran, this UNESCO selection highlights the geological, cultural and social importance of the railway infrastructure as well as its tangible and intangible heritage to Iranian society, cultural values and national visions toward the industrialization and modernization of the society.

Industrial Heritage Reloaded

Le patrimoine industriel rechargé

TICCIH 2022
MONTREAL





The 1937-38 Supermarine Spitfire Supermarine Flight Shed is threatened by demolition. (Julian Temple)

UK

BROOKLANDS MUSEUM: REPURPOSING HISTORIC AVIATION BUILDINGS

Allan Winn, Chairman of Aviation Heritage UK a Vice-President and past CEO of Brooklands Museum

Aviation is still a very young industry: the Wright Brothers' first flight was less than 120 years ago, and industrial-level production of aircraft did not really begin until the early years of World War One. However, it has always been a fast-moving and rather volatile industry, and many of its early manufacturing buildings have already been lost.

As a result, the relatively few aircraft manufacturing buildings which have survived thus far are assuming ever-greater importance, even though many of them would not satisfy the usual criteria, such as architectural merit or close association with famous people, for being listed or preserved as historic structures.

At the end of 2021, several important historic British aircraft manufacturing buildings were under threat of demolition, and organisations like Aviation Heritage UK (the representative body of the

British aviation museums and collections) were fighting hard to save them. The highest-profile of these structures were the Flight Shed dating from 1937-38 which is the last remaining factory building in Southampton of those in which the Supermarine Spitfire was built during World War Two, and the art deco headquarters of Philips & Powis and then Miles Aircraft from 1939 to 1948, at Woodley in Berkshire. Far from being abandoned or derelict, both of which remain in fully usable condition viable for conservation and repurposing.

That such old aviation buildings can be successfully repurposed is evidenced by the project completed in 2017 for the relocation, restoration and re-tasking of a 1940 Bellman Hangar at Brooklands Museum in Surrey. This is a very lightweight modular steel structure, originally designed in 1936 to be easily and quickly dismantled and re-erected on different sites. As such it was built largely of identi-



Before its restoration the Bellman Hangar was in near-derelict condition, exhibits endangered by the poor environment of its cramped interior: (Brooklands Museum)

cal pre-welded 8ft (2.4m) lattice-work sections bolted together to form both the vertical wall columns and the roof girders.

This particular building, erected in haste in late 1940 to boost assembly capacity for the Vickers Wellington bombers, was built on the flat Finishing Straight section of the 1907 Brooklands motor racing circuit. A single-span structure with no internal columns, it remained in industrial use until the aircraft factory (by now owned by British Aerospace) closed in the late 1980s, by which time it had been altered in many ways. It then served for 25 years as the main aircraft display building of the Brooklands Museum which had been established on the site as the factory was closing. As the only surviving aircraft manufacturing building at Brooklands the Bellman Hangar was Listed as a Grade II historic structure in 1999.

Under a major redevelopment project initiated in 2007, the Museum management created a plan to restore the Bellman Hangar but also to restore the section of historic racetrack on which it stood. This was to be accomplished by dismantling the hangar, repairing and restoring its component parts and re-erecting it on a new site adjacent to the racetrack, which would then be repaired

and re-instated. Included in the plan was a new building with the same profile as the hangar, which would be erected in line with it and would house some of the Museum's aircraft and also provide new workshops and a much-needed purpose-built archive store to replace inappropriate temporary storage.

The hangar itself was to be re-purposed as an interactive representation of an aircraft factory, telling the story of 80 years of design, development and manufacture during which some 18,000 aircraft had been delivered from Brooklands – believed to be largest number of aircraft built on a single site anywhere in Europe. Funding for this £8 million+ development was eventually secured from the Heritage Lottery Fund (now the National Lottery Heritage Fund) and various other central and local-government bodies, Arts Council England and private donors.

The challenges of delivering such a transformation were significant. As a listed building, the hangar had to be preserved in as original condition as possible while making it suitable for modern museum use. While most of the steel structure was shown to be sound and needing only cosmetic restoration, the bottoms of the columns had



The hangar doors are repainted in the same camouflage pattern as they carried in the 1940s. (Brooklands Museum)

been encased in damp concrete for many years and many had rusted badly. Once the building had been dismantled – satisfyingly, most of the 76-year-old nuts and bolts were re-used – all the structural steel was taken off site to be stripped and painted, with seriously corroded sections replaced with identical new sections. In the end, only around 5% of the steel structure had to be replaced. With the extra weight of cladding and to make the restored structure comply with modern snow and wind loading requirements, a new tubular steel structure was installed in the eaves, and painted in a different shade to make sure it is not mistaken for part of the original structure.

The badly corroded cladding had to be renewed to look just like the original inside and out, and installed in the same way but meeting modern standards of insulation. To achieve this, original-style zinc-coated corrugated steel sheet was used internally with a colour-coated outer sheet to the same profile on the outside.

To avoid placing any unnecessary loads on what is still a very light-weight structure, a new mezzanine floor was made entirely self-supporting and not tied to the main building in any way, and where heavy exhibits such as the Brooklands-designed Airbus A320 wing and a large collection of historic propellers appear to be hung on the columns they are, in fact, also mounted on stand-alone, self-supporting frames.

One of the requirements of Historic England as the Listing authority was that the hangar should still be able to be used as it would have been when first built: this meant that the full-width, multi-section rolling doors at each end had to be restored to full operating condition, even though they will rarely be opened.

This restoration and the Aircraft Factory exhibition which it now houses (and which itself makes use of many original items of equipment from the Brooklands factories alongside the aircraft on dis-

play) has won many awards and other recognition. It is an outstanding example of how, with a fair amount of imagination (and massive amounts of determination and optimism) a dilapidated original aircraft manufacturing building can be repurposed as a world-class exhibition space meeting modern environmental standards while preserving its original core structure and, crucially, its character. The heritage movement needs to use examples like this to fight the needless destruction of other aviation and other industrial buildings and to press instead for their sympathetic conservation and re-use in the communities they served.

Allan Winn is Chairman of the Heritage Working Group of the UK All-Party Parliamentary Group on General Aviation, and a Vice-President of the National Transport Trust.



The restored interior provides an appropriate environment for the new displays. (Brooklands Museum)

POLAND

A LEGACY OF ENGINEERS AND METALWORKERS IN WARSAW'S NORBLIN FACTORY

Michał Bogusławski, Monument Service, and Marek Mroziewicz

The transformation of the former Norblin Factory Warsaw into an open museum is the achievement of several generations of conservators. The concept of such a museum was first formulated in the early 1980s. Its construction was suspended during the political and economic transformation in post-Communist Poland, and was finally carried out by a private investor, Capital Park. Consequently, a private museum of industry and technology was created, based on an exceptionally complete ensemble of ten buildings, 50 machines and accompanying elements of technical infrastructure, the tracks of a factory rail system with a total length of 460 m and some 20 track carts.

The history of the area now known as the Norblin Factory dates back to a suburban estate founded in the late 18th century by Stanisław August Poniatowski, a trusted courtier and associate of the last king of Poland. Soon, however, this area, along with other properties in the vicinity, turned into a thriving industrial suburb of Warsaw. The factory is best known for silvered products, the heyday of which fell at the end of the 19th century, but the largest scale of operation was achieved by the plant in the inter-war period, mass-producing non-ferrous semi-finished wares. Subsequent war damage and economic crises led to a gradual degradation of the plant, prolongation of production on increasingly obsolete equipment, and finally its closure in 1981.

The work on the implemented concept began in 2008, with the facility already in a very poor technical condition. However, thanks

to the prolonged agony of the plant combined with the enormous effort of the employees of the Museum of Industry and the management of the NOT Technology Museum, an almost complete technological line of a non-ferrous metal rolling mill survived on its premises, too outdated to be suitable for sale or relaunching production in another location. That comprises the core of the modern museum collection. Together, the surviving 19th and 20th-century factory layout, its buildings with elements dating back as far as the 18th century, along with the aforementioned machine line form a clear story about how the local industrial plant developed and operated.

The revitalization project intersperses modern functions with the museum collection which is spread out across a series of publicly accessible spaces. Conducting the investment on a small downtown plot filled with numerous historic buildings presented significant technological and logistic challenges.

The construction of an underground garage forced a temporary relocation of one of the historical buildings, which returned to its original location after underground works were finished. A special logistical approach was required due to the scale of many of the machines, including their relocation to a conservation workshop for the duration of heavy construction works. Some of the largest artifacts (including a 12.5m-high raised weight hydraulic accumulator) had to be reinstalled in their target locations before new buildings were erected. Buildings were then assembled around historic machines, requiring particularly careful planning of works. Basically, all



The Norblin Factory from the west, the historic factory buildings and two contemporary buildings in place of missing ones on the right, new office buildings suspended over historic halls on the left side. The construction process can be followed in this time-lapse film. Photo: Capital Park Group

the museum objects required an individual approach both in terms of their foundations and the arrangement of their immediate surroundings.

The guiding principle for conservation works was authenticity, particularly important in relation to the historic machines. Traces of wear, minor damage, patina, as well as the improvised and makeshift nature of some machine parts and interior elements, including those from the period of reconstruction after World War II, were respectfully retained, testifying to their history.

The exhibition's final shape results from the parallel implementation of several conservation approaches:

- conservation works were carried out both in situ and in a conservation workshop;
- many historic machines were left in their original locations, where the relationship between technology and architecture was of significant historical value;
- selected machines were relocated in order to make the functional relationship between them clearer and for the best accessibility.

True to their functional and technological connections not only architectural monuments and historic machines were retained, but

also the factory's narrow-gauge railway with track carts, cast iron floor plates, hydraulic pipes, mechanical fans and air ducts and overhead cranes.

The factory's historical urban fabric has been restored as gaps left by missing factory buildings were filled with contemporary structures along Prosta street, one of Warsaw's most important arteries. These combine modern materials with a scale that respects the historical silhouette of the plant, particularly in the case of a local landmark, the hydraulic accumulator tower, reconstructed as a fully glazed building. Likewise, the narrow character of an internal factory street was restored. Large new office buildings which provided financing of the entire investment were withdrawn to the northern part of the plot and suspended over several historic factory halls.

Full-height glazing in the new buildings along Prosta street reveals two large-scale exhibits of the museum with almost complete technological lines, and the metal hot-forming line with a furnace, horizontal extrusion press and drive pumps.

Conservation work at the Norblin Factory included continuous research, both archival and on the historical substance. In-depth studies of the characteristics of the local industrial architecture allowed a faithful reconstruction of the architectural detail of numerous factory buildings, which historically had detailing that was richer on street-front facades and gradually simplified on facades less visible



Hydraulic power station with one of the few remaining raised weight accumulators in mainland Europe. Photo: Julia Markiewicz



Translocated hardening furnace. Photo: Marek Mroziewicz

to an external observer. This reflected the economic principles of pragmatic factory owners.

Another direction of continuous research was the functioning of individual machines, many of which were built or modified on the premises of the plant. As the research progressed, the understanding of how these operated grew, along with respect for the changes

introduced over the machines' lifetime. Many initially seemed down to damage, but after careful observation were revealed to be practical alterations. It is the many imperfections that form the spirit of this place, allowing the former factory workers to speak today, and giving an attentive observer a better understanding of how these people thought and how they performed their work.



The Industrial Museum of Denmark is located in Horsens' first electrical power plant, opened in 1906. (Industrial Museum of Denmark)

DENMARK

INDUSTRIAL HERITAGE CULTURE IN THE 2020s: NEW RESEARCH COLLABORATION

Anders Houlitz, Associate Professor in the History of Science and Technology, Centre for Business History, Stockholm

How has business globalization, digitization and relocation affected our understanding of industrial heritage culture? An interdisciplinary research group with participants from Denmark, Finland, Norway, Estonia, Lithuania, Latvia and Sweden has been formed to discuss the relevance of industrial heritage in the information society, during three workshops. The collaboration is a pilot project, financed by the NOS-HS foundation. It aims to strengthen the network between Nordic-Baltic industrial heritage agents and to initiate an international research project on the changing meanings of industrial heritage.

The first workshop at the Industrial Museum of Denmark in Horsens, Jutland, 5–7 November, was organized by Morten Pedersen,

head of department at the Historical Museum of Northern Jutland, and Caspar Jørgensen, special consultant at the Palaces and Culture Agency. It focused mainly on similarities and differences between the different Nordic and Baltic countries during their transition from industrial to information society.

Maths Isacson, professor of Economic History at Uppsala University, started by drawing important dividing lines between the high-industrial period of the 20th century and the global industrial age in which we live today. Susanna Fellman, professor of Economic History at the University of Gothenburg, discussed the effects of this transition concerning the location and mobility of industrial companies, in terms of reshoring and homeshoring. Henrik Harnow,

director of Odense City Museums, talked about future prospects of research on industrial heritage and industrial archeology in a northern European perspective. Johanna Björkman, Head of cultural environment at Helsinki City Museum, and Casper Jørgensen each gave an overview about implemented conservation efforts and industrial heritage listing in Finland and Denmark, respectively. Thereafter, Kristoffer Jensen, director of the Industrial Museum of Denmark, spoke about the role of museums in industrial heritage work. Finally, Anders Houlitz, head of research at the Centre for Business History in Stockholm, discussed how awareness and engagement concerning industrial heritage and preservation can be strengthened among companies and the general public. Day two started off with a tour

of industrial landmarks in Horsens city, led by Caspar Jørgensen, after which the workshop continued with a discussion about concepts, methods and possible study objects.

However, the discussions are far from over. During 2022, the project will organize two more workshops, one in Tampere and one in Gothenburg, with the aim to formulate a joint research application. Today's industry differs in many ways from that of the 20th century, but it continues to set its mark on our society – how can we comprehend and narrate this historical transformation?

[Contact the author](#)

PUBLICATIONS RECEIVED

URBAN TEXTILE MILLS: CONSERVATION AND CONVERSION

By Heike Oevermann, Be.Bra Wissenschaft Verlag, Berlin-Brandenburg, 2021

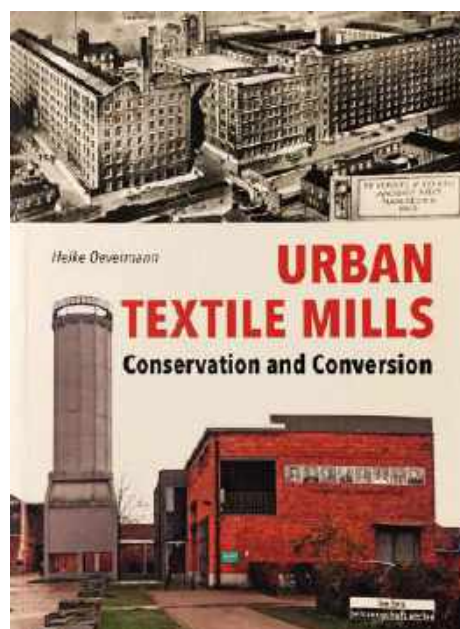
FROM COTTONMILL TO COTTONOPOLIS: HOW TEXTILE Factories SHAPE URBAN FORM

Massimo Preite (TICCIH)

Heike Oevermann, full professor in heritage conservation at the Otto-Friedrich-Universität in Bamberg, is well known to our readers. The quality of her research on the conservation of industrial heritage in the context of urban change has already been authoritatively demonstrated in the book she edited (together with Harald A. Mieg) *Industrial Heritage Sites in Transformation: Clash of Discourses* (2014), often cited in our *TICCIH Bulletin*.

This new publication - the result of a personal research work over the last four years on a specific sector of industrial heritage, that of textile mills, further develops the themes already addressed previously, through a theoretical-conceptual framework of great methodological depth.

The starting point is clearly stated by the author: 'production, I argue, is not the 'other' function outside the city and far away from the urban, but is instead an integrative part of it'. The full meaning of this statement can be better understood by adding that production



sites are an integral part not only for as long as they remain active, but continue to be an integral part even when, after the cessation of production activity, when they are reconverted to new functions. The interdisciplinary approach is the one that best captures the multiple and changing interactions between factory and city. It is the task of historical research to establish the consequences that the building of industrial plants has had in determining urban form, while it is the task of design analysis to establish how well conservation and transformation have managed to reconcile respect for the building's historical memory with its adaptation to new uses.

The integration of the two levels of interpretation - historical investigation and design analysis - is just one of the many merits of this work, which, although limited to a limited number of cases, nevertheless constitutes a highly representative sample of the Euro-

pean textile industry. Due to their typological variety, their different construction periods and their articulated geographical distribution, the 20 examples selected offer a broad overview of the ways in which 'industrial production sites fit into the urban morphology' and of the opportunities for urban regeneration and sustainable development that can arise from their conservation and conversion.

Once the main theme of the work has been clearly stated, the different levels of investigation follow in logical coherence. The first concerns the textile cities examined, ranging from England to France, Belgium, Switzerland, Germany and Poland and, additionally, single complexes in Italy, Spain and Portugal. The main stages of the industrialisation processes, centred on the textile sector, that took place in the various cities, as well as the development of the factories in the context of their urban surroundings, are reconstructed by means of agile historical profiles. A section dedicated to the typological-structural analysis of historic textile mills follows. This is certainly one of the most innovative chapters of the research in which the author, after an accurate excursus of the previous studies on the same theme (by Bartosz Walczak, Nikolaus Pevsner, Axel Föhl and Manfred Hamm, and others), proposes, making use of personal graphic elaborations of great effectiveness (layout plan and isometric views) 'four types of spatial structures for historic urban textile mills'.

The first type is the urban block, composed of a collection of functional buildings under common management or ownership, consisting of four wings along the streets and defining the block perimeter, with an inner courtyard. Murray's Mill and McConnel & Kennedy's Mill (Manchester, UK) are the prototypes, they use 'the urban grid and perimeter buildings and then vary this ancient form by newly shaping it through their size, volumes, and facades'.

The second type is that of the 'flagship and giant composition', made up of complexes of buildings unitarily designed (single-plan complex) which, instead of adding to the 'grid structure that was typical for the late 18th and 19th century urban extension', 'are free standing rather than following defined boundaries of the urban surroundings' and create, for their architectural grandeur, their own urban spatial order, based on principles of axuality and symmetry and distinct from the surrounding urban fabric (Listers Mill, Bradford, UK), to the point of giving rise, in some cases, to autonomous industrial towns (Salthouse, UK).

The third typology of 'additive structures' includes the largest number of textile mills in Europe. In contrast to the previous compositional typologies, which includes textile complexes 'corresponding to a single design with minor changes in the subsequent decades', additive structures consist of complexes evolved step-by-step, i.e. composed of several buildings added over time to an initial production core. In the structures belonging to this typology, the current configuration is not the result of a preordained design, but rather the effect of continuous adaptations to changes in production organisation. Despite the fact that additive structures do not show marked characteristics of architectural value, their preservation is recommended, as the author rightly argues, because their temporal stratification documents 'the deep interconnectivity between places of production and the city' (Cimatoria Campolmi, Prato, Italy).

The fourth and last type is the 20th century production halls. They

are characteristic not only of the textile production but of industrial production in general and are the result of the need for huge interior spaces connected to the development of assembly lines. The construction of these horizontal factories determined a leap in scale that proved to be irreconcilable with the patterns of the traditional urban structure; the urban layout of VEB Baumwoll-spinnerei & Zwirnerei (Leipzig, Germany) makes the incompatibility of the production halls with the incomparably minute structure of the surrounding urban grid very evident (see fig. 3.101, p. 168).

The four typologies should not be equated with a simplistic classification, since each of them has found its own further declination in multiple variants, connected to the specificity of the urban contexts and the different production layouts.

What should not be lost from sight, however, is the fact that the typological classification of textile mills is not an end in itself, and not only of descriptive value, it is instead a fundamental operational tool to respond to the fundamental task of adaptive reuse of industrial heritage in general: that of 'achieving an appropriate balance between conserving a building as a document of the past and adapting it to present and future needs'.

In order to accomplish this task, the typological analysis, very useful to understand the interconnections of textile mills with the urban context they belong to, must be integrated with the chronological study of the phases of construction and evolution of the historic production structures. This brings us to one of the most original and innovative aspects of this research, namely the colour plates grouped together at the end of the work, in which the multi-phase plans of the 20 textile mills are shown, with different colours for each of the buildings making up the complex, corresponding to its construction period. This is an absolutely astonishing work, which must have required a research effort that is hard to imagine, and whose usefulness is immediately evident in the light of what the author bases protection on: 'the principle of conserving and creating a multi-layered heritage site' in order to 'unlock and make accessible the many pasts and possible futures to which the artefacts may belong'. If this is the objective, only a precise historical knowledge of the specific artefacts is able to provide effective support for a 'careful decision making about which elements will be more strictly maintained and which others might be adapted and changed in order to meet present and future needs'.

The author does not hide the difficulties that the full application of the preservation of the historical layering of buildings has encountered. In Geyer's White Factory (Łódź, Poland) the eastern part of the north wing, rebuilt in 1964 in modern style architecture, was demolished in 2001-2002 to be rebuilt with an earlier historical appearance, resulting in the loss of an important layer of time relating to the 1960s. The property boundary of Salthouse World Heritage Site does not include the youngest layer of time, namely the eastern extension built after 1945. In Poznański's Mill (Łódź), closed in 1997 and reopened as the so-called Manufaktura in 2006, 'the historical brick buildings were conserved, whereas the buildings from the late 20th century were demolished and played no role in the conversion. More generally, the author points out that "the parts of the complexes that form the composition are conserved and highlighted in conversions, where other parts

might be lost'. However, in the current writer's opinion, the criterion for deciding 'which elements will be more strictly maintained and which others might be adapted and changed' is not only that of the greater or lesser preservation of historical layering by the conversion project. The 20 textile mills selected in this book show, in their re-adaptation, an extreme variety of structural modifications and alterations whose appropriateness (or not) should be evaluated also with respect to other requirements. First of all, the functional integrity of the factories: the loss of technical equipment, which generally follows the functional conversion of textile mills, inevitably translates into a significant reduction of their testimonial value. The structural authenticity of the buildings that make up a textile complex is inevitably compromised by interventions increasingly inspired by the deconstructive approach, which makes use of 'subtracting historical fabric and opening the complex' (La Filature, Lille, France), cuts of new courtyards across the floors of the building (VEB Buntgarnwerke, Listers Mill, Leipziger Baumwollspinnerei), roofing of enclosed courtyards (McConnel & Kennedy Mill, Le Blan-Lafont, Canteleu, France), and numerous other interventions altering the original articulation of production spaces.

Personally, I think that after years and years of debate on how to conserve the industrial heritage, we have still not reached shared criteria on how to operate. This lack of consensus leaves enormous room for discretion to the choices of designers, who decide on the basis of their sensitivity to the values of industrial culture, their understanding of the historical genesis of the productive buildings, and their judgement on the degree to which the structures can be transformed while respecting the identity of the buildings. This is an area of discretion, the extent of which is demonstrated by three of the numerous examples of intervention examined in this book. The conversion of the Cimatoria Campolmi (Prato, Italy) into a museum and bookshop is an example of a renovation inspired by the principles of restoration, restricting the use

of new materials and structures to the strict requirements of structural consolidation. With the demolition and reconstruction of the wing of Murray's Mill along Bengal Street, a new building was constructed to replace the lost original which nevertheless restores the perimeter of the old block and re-proposes a new 'solid' in volumetric analogy with the demolished one. The addition, instead, of new volumes to the original buildings (the protruding glass parallelepiped of the swimming pool on the roof of Poznański's Mill, or also the new apartments located in 30 zinc-clad pods on the roof of Listers Mill), created intentionally in a relationship of formal discontinuity with the morphology of the pre-existing structures, could perhaps be considered as a layer of our time that, although functionally disconnected from the productive purposes that the textile mill no longer pursues, nevertheless contributes to the extension of its historical stratigraphy.

We believe that it would be inappropriate to establish a ranking of merit among the three modes of intervention (restoration, reconstruction in dimensional harmony with the lost volume, addition of new elements that intentionally differ in terms of materials and construction technique from the building to which they are added), since each of them must be evaluated in relation to the particular conditions of time and place in which it was carried out.

Perhaps the lesson to be learnt from all this is that we are still on the open sea when it comes to determining the right balance between conservation and adaptation, and that a landing place, capable of offering some more certainty in this regard, is not yet in sight. However, one cannot but agree with the author that 'in the face of challenges such as vacancy and decay, the conservation and conversion of mills as urban landscapes is one useful contribution, which may be selected on the basis of a careful historical study'.

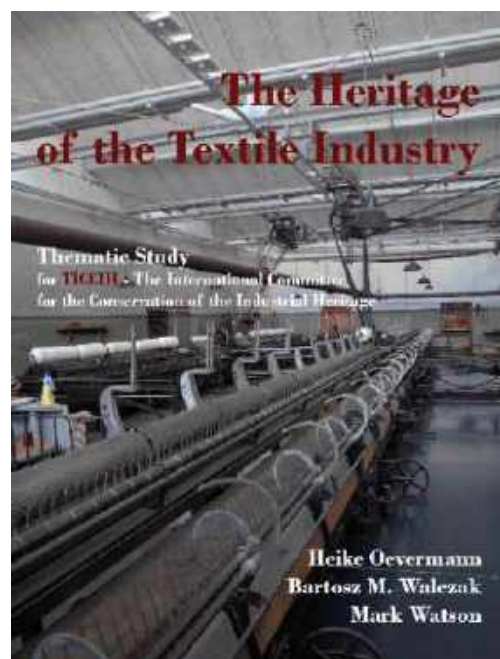
TICCIH THEMATIC STUDY

The Heritage of Textile Industry: Thematic Study for TICCIH

Heike Oevermann, Bartosz M. Walczak, Mark Watson

The textile industry is a global phenomenon. It was the impetus for industrialisation, the growth of cities, the creation of company towns and world-wide trading routes in staple goods: silk, wool, linen, cotton, jute and artificial fibres. Facing global economic changes, textile mills has proved adaptable to new purposes. Many spearhead urban regeneration and secure the future identity of places. Which lessons do mill conversions give? Which are the pioneers, the flagships, the giants, and the time capsules - machinery, and related skills. Which networks best demonstrate international interchange? Did associated company towns fail or prosper? Some are World Heritage Sites - is the balance correct? What attributes do these places share, what makes them different, and what is missing? This book condenses input by several researchers into the better understanding of textile mills worldwide.

Available online: <http://repozytorium.p.lodz.pl/handle/11652/4237>



RAILROADS: A HISTORY IN DRAWINGS

By Christopher Valkoinen. 2021. New York: Thames & Hudson and The National Railway Museum. 306 pages. Hardcover, \$75.00. 300 b&w and color illustrations.

Betsy Fahlman, Arizona State University

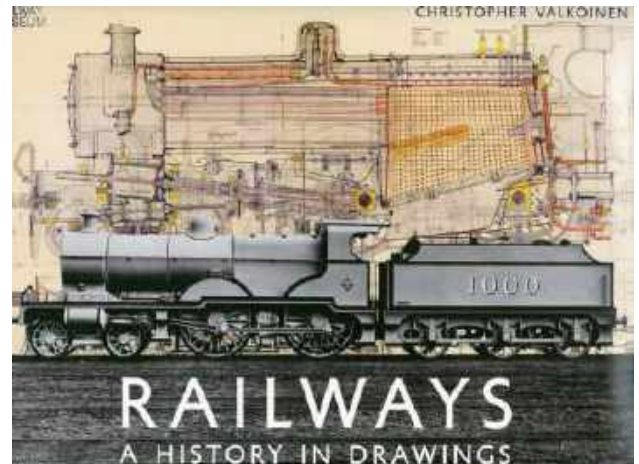
Railroads: A History in Drawings is a stunning book that draws on the exceptional collections of the National Railway Museum in York, England. From nearly a staggering one million items, Christopher Valkoinen has chosen over 130 images that provide an engrossing history of the British railway from the 19th century through the 1970s. Supplemented by period and contemporary photographs, this fascinating volume documents a dual history of technological innovation that paired the inventiveness of engineering with the beauty of art. The railway age transformed Britain (and the world), and it was the skilled draughtsmen who gave preliminary visual form to the industry with their painstaking drawings. Their exquisite handwork is of necessity technically accurate, but also unexpectedly elegant.

Valkoinen has made his selections of illustrations with an eye to conveying the greatest possible breadth of his subject. The book is divided into seven broad categories, with a total of 108 subheadings. The first, *Two Centuries of Locomotion*, traces many early milestones, including Robert Stephenson's *Rocket* of 1829 that ushered in a century of steam. Engines and routes were laid energetically, with each advance in speed, power, and efficiency soon rendering previous improvements obsolete. If you want to know what a horse dandy is or a dynamometer car, this is the book in which to find it. This section documents the *Flying Scotsman* finally breaking 100 MPH in 1934 and the establishment of suburban commuter networks, nationalization as *British Railway* (1955), and the *Hovercraft*.

The *Railway Passenger* enjoyed the freedom of leisure travel, made possible by a combination of speed, price, comfort, and safety. The working classes became an important market. Queen Victoria first travelled by rail in 1842 and continued to do so for the rest of her life; she had a series of luxurious private cars for her personal use. Long distance journeys were made more comfortable by restaurant cars, toilets, and sleepers. Rail travel was not just for the living as seen with the establishment of the *London Necropolis Railway* (1854).

More money was to be made with freight than passengers, and a myriad of goods were transported by rail, a topic addressed in *Freight on the Railways*. Mail was sorted en route, circuses (including elephants!) were carried to many venues, and the ability to get fish safely to markets facilitated the birth of fish and chips.

The millions of people employed in the industry, which for many years was the largest single employer in the British Empire, is cov-



ered in *Railway Workers*. The jobs were difficult, tiring, painful and dirty, and frequently dangerous with strict rules and sixty-hour work weeks. The London and North Western Railway manufactured its own artificial limbs (a design for a prosthetic device is reproduced).

That the sun never seemed to set on the British railway empire is the subject of *The Railway Workshop of the World*. An important tool of colonialism, wherever the railways went, industrialization and growth followed. For a century and a half locomotives and engineers were dispatched to far-flung sites, including to Africa, Asia, South America, and Australia. At termini, spectacular structures were constructed, and one of the most impressive was The Great India Peninsula Railway's Bombay Victoria Station.

Military uses for the railways were obvious from the outset to move troops, guns, and material quickly and over long distances, as documented in *Railways at War*. The mechanized warfare of World War I resulted in carnage on a staggering scale. The wounded were transported to casualty clearing stations just behind the front lines, where they were triaged into three categories, and taken by ambulance trains which efficiently transported them to hospitals across the Channel. During World War II, stations were frequent targets of aerial bombing. The big railroad shops and their staffs shifted focus and were tasked with producing armaments.

The final section is *Building the Railways* which explores what was a tremendous undertaking that pushed the boundaries of engineering. The stations comprised monumental palaces of progress, surveying and establishing routes was a complex task. The London Underground, which opened in 1863, was the first in the world and continued to expand in the 20th century.

A helpful timeline is a useful reference taking the reader from 1550 to 2008. There is a short glossary of terms and a page of well-chosen recommendations for further reading. Be forewarned: once opened, it is very hard to put this book down! Christopher Valkoinen's magnificent work will be of interest not just to railfans, but also to anyone who wants to learn about the extraordinary cultural history represented by the railroad.

LINKS TO ONLINE EVENTS CALENDARS:

- [TICCIH Conference Calender](#)
- [ICOMOS Conference Calender](#)
- [UNESCO Events](#)

To add events to the TICCIH Calender please send details and a link to ticcih@mtu.edu



TICCIH

THE INTERNATIONAL COMMITTEE FOR THE
CONSERVATION OF THE INDUSTRIAL HERITAGE

BULLETIN

NUMBER 95 · 1st Quarter 2022
ISSN 1605-6647